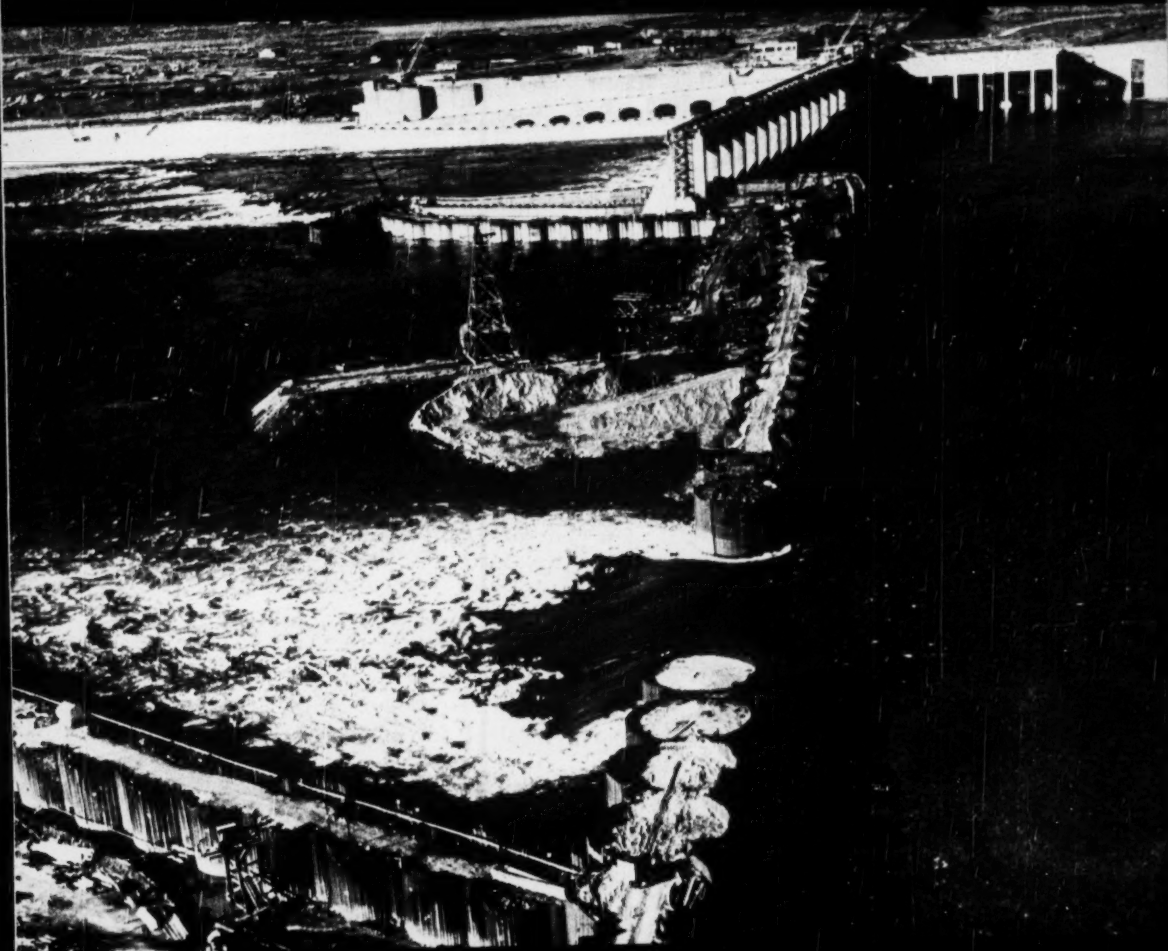
ENGINEERING NEWS-RECORD



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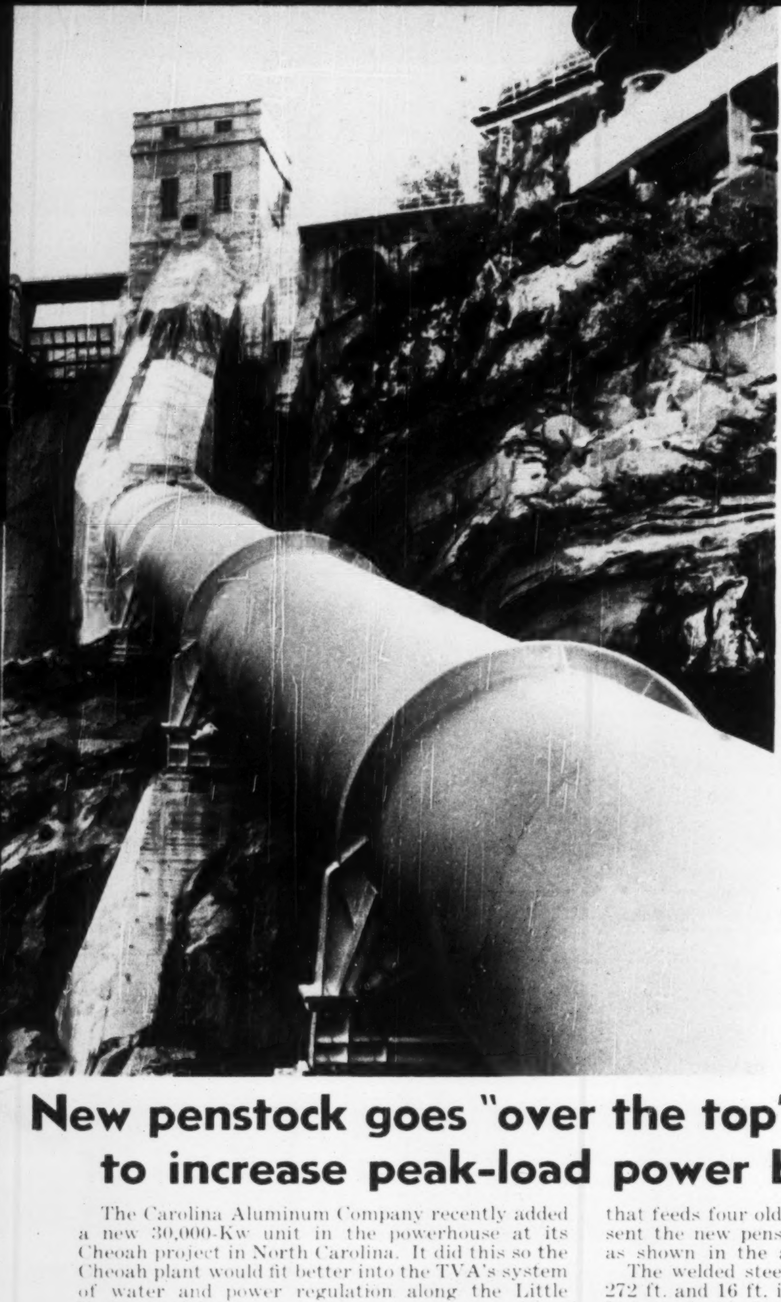
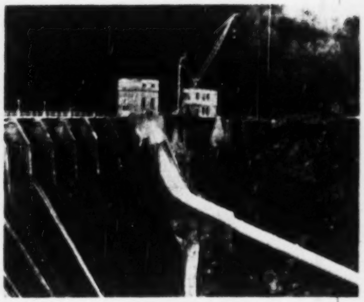
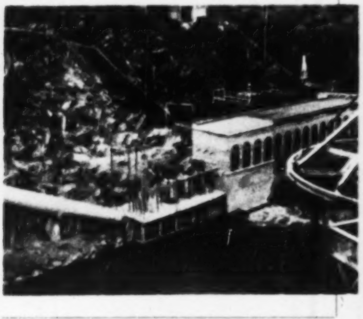




Above: View showing how new steel penstock at Cheoah Dam is connected to converted flood gate by means of 17-ft. diam. concrete conduit.



Above: This view shows how the steel penstock enters the powerhouse. It also clearly illustrates the powerhouse extension that houses a fifth turbine. The other four turbines are located in the older part of the powerhouse. Head on all the units is 188 ft.

New penstock goes "over the top" to increase peak-load power by one-third

The Carolina Aluminum Company recently added a new 30,000-Kw unit in the powerhouse at its Cheoah project in North Carolina. It did this so the Cheoah plant would fit better into the TVA's system of water and power regulation along the Little Tennessee River.

Alcoa engineers used a novel—but very sensible—method for installing the penstock for the new unit. They could have laboriously dug a conduit for the unit from the powerhouse to the rock tunnel that feeds four older turbines. Instead, they simply sent the new penstock "over the top" of the dam as shown in the above views.

The welded steel penstock is 17 ft. in diam. for 272 ft. and 16 ft. in diam. for 103 ft. of its length. It is made of plates ranging from ½ in. to ⅞ in. in thickness. This penstock is an example of the steel plate work we do for engineering projects. Write our nearest office for quotations when you need steel plate structures of any type.

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MORE POWER

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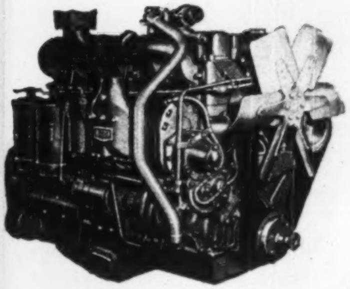
275 h.p. at 2100 r.p.m.

. . . Now your choice in LAPLANT-CHOATE MOTOR SCRAPERS

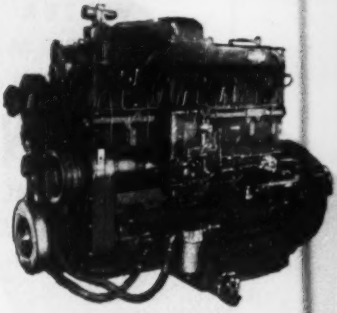


BUDA DIESEL 6-DAS 844—
Here's a newer, bigger Buda Diesel that gives you 20 *h.p.* per struck yard of capacity . . . a new high in power and performance!

HERE'S a power boost for the already powerful Motor Scraper . . . a step-up from 225 h.p. to your choice of either 275 or 280 h.p.! Two great Diesels, Buda or Cummins, whichever fits your set-up best. Power to spare in the toughest going! Power that's useable through a heavier final drive! Power that provides new highs in average haul road speeds!

In addition, you get all the original Motor Scraper features: — big capacity . . . big tires . . . double-acting hydraulic steering . . . four-wheel air brakes . . . faster, easier loading . . . positive forced ejection *plus* high apron lift, and many others — your assurance of more yards per trip . . . more trips per hour.

Don't overlook the profit potential of the TS-200—the little earthmoving giant in the 9 to 12 yard class, now available with the Cummins HRB-600, 165 h.p. Diesel.



CUMMINS DIESEL NHS-600—
275 h.p. that steps up *Motor* Scraper production performance and profits to new heights!

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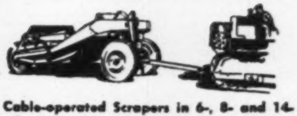

Cable-operated Scrapers in 6-, 8- and 14-yd. sizes for all makes of track-type tractors.

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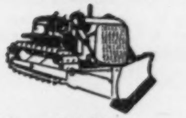
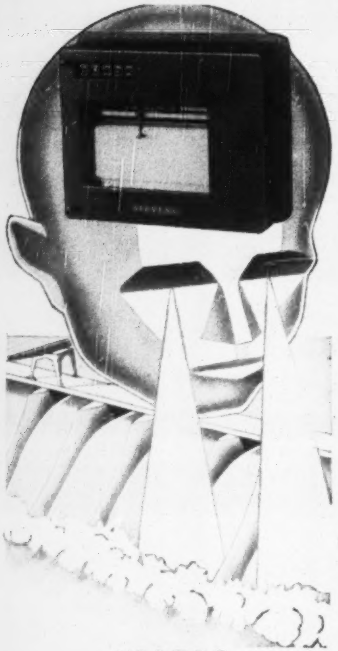


Hydraulic and Cable-operated Dozers.



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ENGINEERING NEWS-RECORD

Member

Volume 145 DECEMBER 14, 1950 No. 24

WALDO G. BOWMAN
Editor

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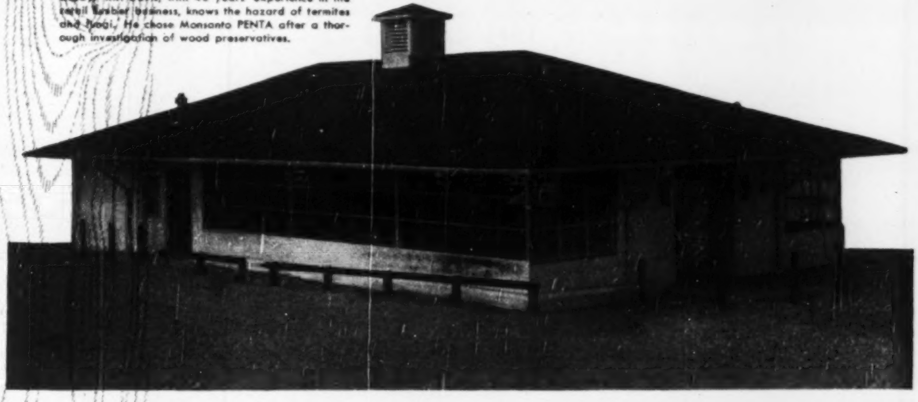
MONSANTO PENTA protects this drive-in restaurant building against damage by termites and fungus decay. Mr. Davis, with 40 years' experience in the retail lumber business, knows the hazard of termites and fungi. He chose Monsanto PENTA after a thorough investigation of wood preservatives.



protected against termites, protected against decay with

MONSANTO PENTAchlorophenol

(SANTOPHEN 20)

Having lumber pressure-treated with Monsanto PENTAchlorophenol, the drive-in restaurant erected in suburban St. Louis by Builder J. W. Davis is protected two ways. First, it is protected against termites in an area where they often are a problem. Second, fungi that cause wood to rot cannot damage the structure. It will last many years longer, and have lower maintenance costs, than similar buildings that are unprotected.

The yellow pine studding and the tongue-and-groove sheathing of the building, up to 96 inches above the ground line, are treated with eight pounds of PENTA per cubic foot. Such Monsanto PENTA protection in the "danger zone" is thorough and economical.

PENTA is a chemical developed especially for wood preservation. It always delivers uniform, dependable results. PENTA does not leach out of wood nor wash away in rain or ground water. Inspection of material treated with Monsanto PENTA shows that the preservative continues to penetrate into the wood as time goes on. Treated with properly formulated PENTA, wood can be used in doors, windows and other parts which are to be painted or varnished. PENTA formulations also can be made water-repellent.

No matter what use you are making of wood, it will pay you to employ lumber that is protected by Monsanto PENTA. For information on sources of such lumber or PENTA formulations and on methods of applying PENTA, mail the coupon or contact the nearest Monsanto Sales Office. MONSANTO CHEMICAL COMPANY, Organic Chemicals Division, 1759-K S. Second St., St. Louis 4, Mo.

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Heavy jobs off-the-road...heavy equipment over-the-road GENERAL
GETS MORE DONE, MOVES MORE TONS
EASIER! FASTER! SAFER! CHEAPER!
THE GENERAL L.C.M.
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Here's General's dual-purpose team. The General H. C. T. with more, safe traction to go in and get the load . . . and take it long distances over the highway. The General L. C. M. to work 80% off-the-highway. Massive, deep lugs develop extra traction under heavy loads. Let your local General Tire Distributor show you how you can make more profit with this Top-Quality dual-purpose Truck Tire Team.

SPECIFY GENERAL TIRES ON NEW EQUIPMENT

"We have found our MURPHY DIESELS dependable, efficient and economical."

Says: W. E. LAMBERT
Pres., Lambert Bros., Inc.

MORE output at less cost is what you get with dependable Murphy Diesel Power . . . and that's what makes bigger profits for you. Like so many crushed stone contractors, Lambert Bros., Inc., with headquarters at Knoxville, Tenn., found this to be the case. But read what Mr. W. E. Lambert, President, has to say about their Murphy Diesels—

"In connection with our twelve quarry operations in five southern states, we have a large number of Murphy Diesels of different sizes. Some of them have been in operation eight or ten years. We have found them dependable and efficient, and economical as to fuel consumption and up-keep."

Performance like this is what makes Murphy boosters out of Murphy owners everywhere. If you can use diesel power, be sure and find out what Murphy Diesel power can do for you. All the facts are presented in the booklet, *"10 Questions to Ask a Diesel Engine Salesman."* Write for your copy, today.

MURPHY DIESEL COMPANY
5311 W. Burnham St., Milwaukee 14, Wisconsin
Qualified dealers throughout the nation.

MURPHY DIESEL

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for construction

Murphy Diesel Engines and Power Units for construction, 90 to 220 H.P. Generator Sets, 60 to 133 K.W.

Brackets, luminaires and component parts by Josyln Mfg. and Supply Co.

Let *steel poles*
be the *finishing touch*
to your civic improvement program!

• You add a lot to the looks of your city when you replace obsolete wood poles with trim-looking tubular steel standards. On the main streets, on the boulevards or in the parks, steel poles are smartly unobtrusive, and they stay good-looking and modern . . . an important feature in long range civic planning.

Use them right, and steel poles will save you money. They can be spaced at wider intervals, so you need fewer poles. They're easy to erect, require no maintenance except for an occasional paint job.

Steel poles are safe. They take a lot of punishment. And, because of steel's great strength, tubular poles can be made with smaller diameters—resulting in better traffic visibility and better all around safety.

NATIONAL Seamless Tubular Steel Poles have uniform wall strength without longitudinal welds. To produce them this way, we actually pierce a billet of fine steel to form the basic tube. This forging operation, one of the most difficult in steel forming, gives you the famous "Walls Without Welds," and, incidentally, the strongest, most durable tubular steel section you can buy.

For a description of these steel poles, write for Bulletin No. 14. National Tube Company, Frick Building, Pittsburgh 19, Pa.

NATIONAL TUBE COMPANY, PITTSBURGH, PA.

COLUMBIA STEEL COMPANY, SAN FRANCISCO, PACIFIC COAST DISTRIBUTORS · UNITED STATES STEEL EXPORT COMPANY, NEW YORK

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EUCLID PERFORMANCE *Pays Off*

MORE LOADS PER HOUR
MORE PROFIT PER LOAD!

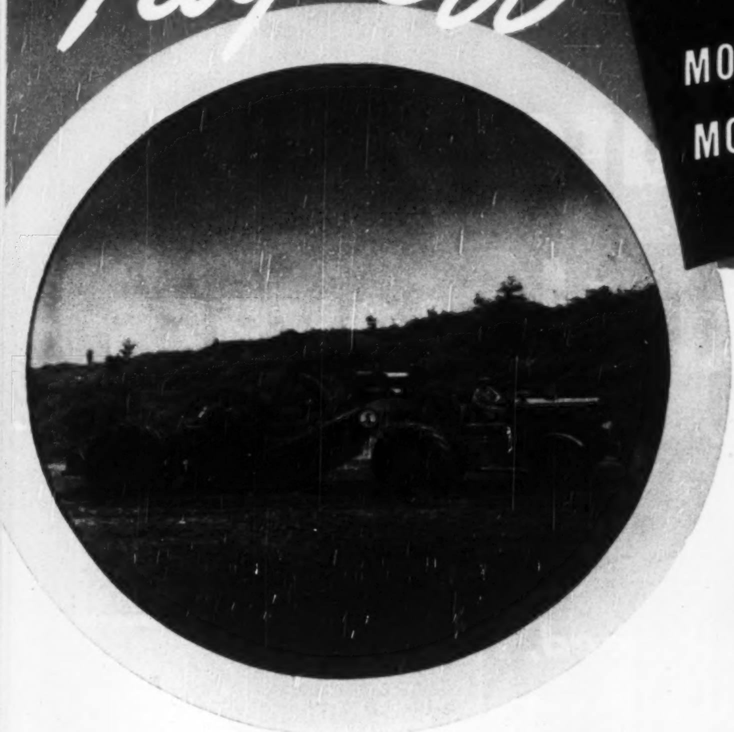
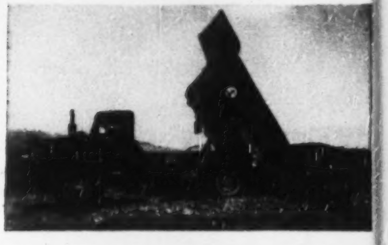
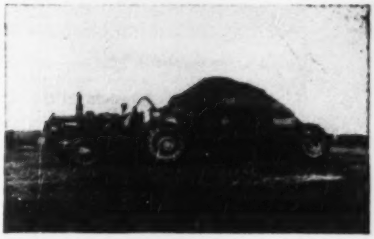


Illustration at left shows a Euclid scraper dumping approximately 20 cu. yds. of fill material at Hickory airport in North Carolina. Powered by a 275 h.p. diesel engine, this scraper has a top speed loaded of 28.2 m.p.h.



Above, a Rear-Dump "Euc" places 22 tons of earth and rock fill during construction of Chief Joseph Dam at Bridgeport, Washington. Other Euclids of this type have capacities of 10 to 34 ton payload, 125 to 400 h.p.



Carrying a heaped load of about 18 cu. yds., this Bottom-Dump hauls overburden at a big open pit bauxite operation in Arkansas. Bottom-Dump "Eucs" are powered by engines of 190 to 300 h.p.; have capacities of 13 to 50 cu. yds.

Engineered specifically for heavy off-the-highway hauling, Euclids are standard equipment on many construction and industrial jobs, quarry and open pit mining operations. Combining large capacity and high speed, "Eucs" haul more loads at less cost per load.

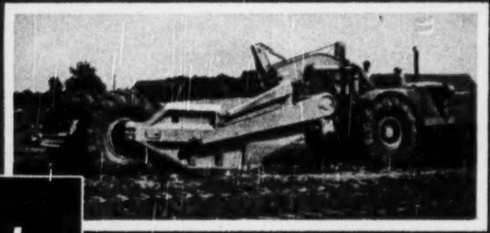
Continuous performance records on hundreds of the toughest jobs are evidence of the dependability and long life built into every Euclid. With payload capacities ranging from 10 to 34 tons or 6.6 to 50 cu. yds., there is a Euclid model for every type of job and material. Backed by a competent world wide distributor organization, Euclid equipment pays off in lower hauling costs.

Your Euclid Distributor will be glad to discuss the advantages of using Euclids for your off-the-highway hauling jobs. Call or write for information or a hauling cost estimate.

The EUCLID ROAD MACHINERY Co. CLEVELAND 17, OHIO
CABLE ADDRESS: YUKLID CODE: BENTLEY

EUCLIDS *Move the Earth*

2 giant new "Caterpillar" Earthmovers

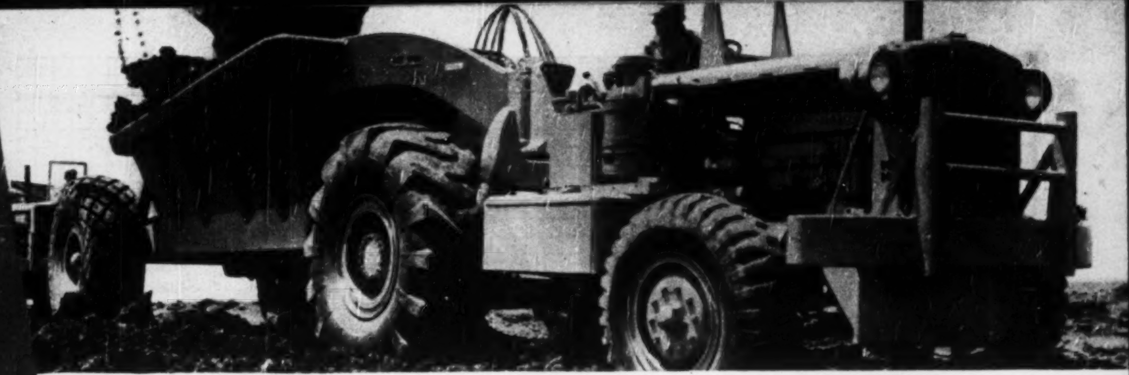


. . . built to outspeed, outwork and outlast all comers!

With their high speeds and huge capacities, these two new "Caterpillar" Earthmovers have what it takes to push work through ahead of schedule. For national defense or private enterprise—on roads, dams, levees, airports or general construction—you can count on them for peak production.

Both these giants are powered by the new 225-HP., 6-cylinder "Cat" Diesel Engine. The 4-wheel DW20, with top speed of 26.6 m.p.h., is available with three matched units: the W20 Wagon, the No. 20 Scraper and the No. 20S 'Dozer. The 2-wheel DW21 has a top speed of 20 m.p.h. and trails the No. 21 Scraper. Features are described on the opposite page.

Here are typical reports on the DW20-W20 unit (25 cu. yds. heaped capacity): "You can run away from other rigs with it," says Operator Robert England. "The dump control is handy and easy to operate. It's got good brakes—you can stop it still, loaded. It's safe on turns and grades. It shifts easy and fast. The engine's got guts." Dragline Operator R. D. Johnson adds: "It's good and wide—you don't waste a bucket. It gets in and out faster than any I ever loaded."



THE DW20 TRACTOR AND W20 WAGON UNIT

This big-capacity unit offers:

17 cu. yds. capacity, struck; 25 cu. yds., heaped.

Travel speeds, through five gear ratios, from 2.88 to 26.6 m.p.h.

Wide-mouthed hopper to provide easy-to-hit target for shovel or dragline loading.

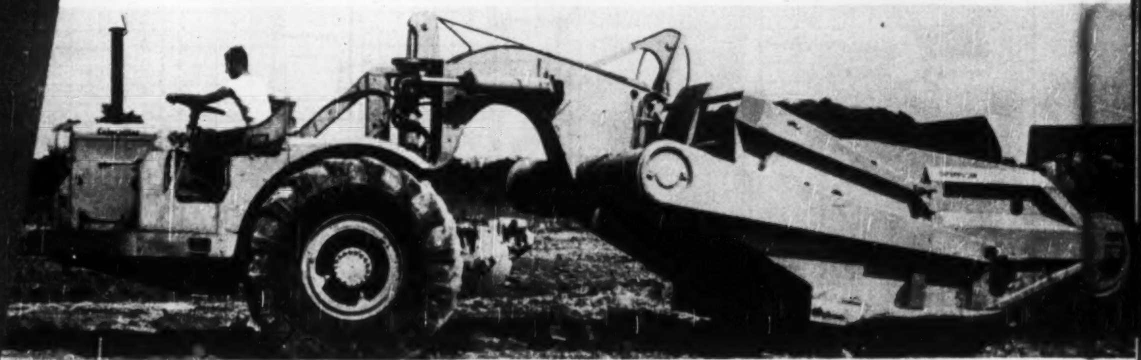
Controlled dumping — openings can be varied without mechanical adjustment — permitting either dumping or windrowing.

Accurate hydraulically controlled dumping with positive mechanical lock on dump doors.

The DW20 Tractor with No. 20 Scraper offers:

The same capacities, speeds and general specifications (except in type of gooseneck) as the No. 21 Scraper.

The DW20 Tractor is also available with the No. 205 Bulldozer.



THE DW21 TRACTOR AND NO. 21 SCRAPER UNIT

This big-capacity unit offers:

Full 90° turn each way—non-stop turn in 35 ft.

15 cu. yds. capacity, struck; 19½ cu. yds., heaped. With available 12" extensions: 18 cu. yds., struck; 22½ cu. yds., heaped.

Travel speeds, through five gear ratios, from 2.16 to 20 m.p.h.

Bowl and apron designed to promote "boiling" action of earth through center of load—for full-measure yardage, minimum loading time.

Large low-pressure tires for easy load flotation.

'Dozer-type ejection for positive "kicking out" of sticky material dependable spring-action ejector return.

Open bowl design for visible loading under shovel or dragline.

Adjustable rear axle to permit level cuts and desired settings.

Double bottom of special alloy steel. Self-sharpening, reversible cutting edge.

High apron lift, low center of gravity.

Built to the exacting standards that characterize all "Caterpillar" equipment, these big yellow earthmovers are production boosters from the word "go!" What's more, your nearby "Caterpillar" dealer is on call for immediate service. For full information about these rigs, see him or write the factory.

•

CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS

DW20 AND DW21 TRACTOR FEATURES

NEW ENGINE: The completely new 6-cylinder "Cat" Diesel Engine . . . 225 HP. at 1900 r.p.m. available at the flywheel . . . 275 HP. peak capacity at 2000 r.p.m. tested in accordance with A.S.M.E. Power Test Codes.

TRANSMISSION: Constant-mesh transmission and heavy-duty clutch. Special locking device prevents gears from becoming disengaged.

STEERING: Hydraulic booster steering follows the natural "feel-of-the-road" hand guidance. Heavy steel stops keep gooseneck of drawn equipment from jack-knifing.

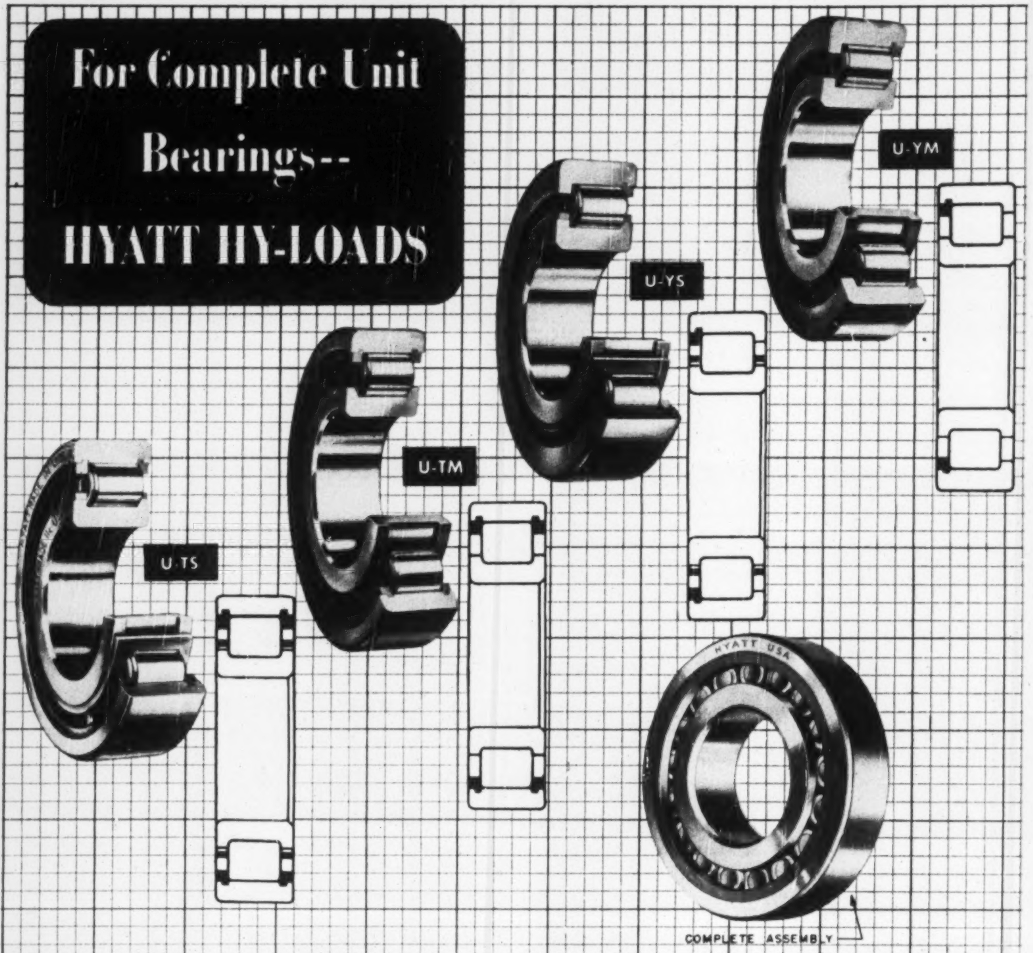
BRAKES: Each large, heavy-duty brake is 22" in diameter, 7" wide. Compressed air energized brakes on both tractor and drawn member of unit. Handy control valves for applying both sets of brakes, and to either right or left driving wheel.

OPERATOR COMFORT: Airfoam rubber cushion on bucket-type seat mounted on coil spring with hydraulic snubber. All controls within easy reach. Excellent visibility.

CATERPILLAR
REG. U. S. PAT. OFF.

DIESEL ENGINES • TRACTORS
MOTOR GRADERS • EARTHMOVING EQUIPMENT

For Complete Unit Bearings--HYATT HY-LOADS



In the Hyatt Hy-Load line of cylindrical roller bearings there are the non-separable types where the rollers, separator and races are assembled into a single unit. They are made for applications where the bearing must be assembled as a complete unit. They also may be used in applications where no shoulder stop is provided to retain the outer race endwise.

Two of these non-separable types are made with cages or separators in which the rollers are pocketed between the inner and outer races. The two other types have a full complement of rollers and therefore are able to carry greater load capacity than is possible with a cage type bearing.

• • •

Complete information about the use of these and all Hyatt Hy-Load Roller Bearings is contained in Catalog 547 . . . a complete engineering guide to radial bearing selection and use. You will find that Hy-Load Bearings with the large selection of bearing types and the wide range of sizes which are made in every type will fit almost any application need. Write for your copy of Catalog 547 today. Hyatt Bearings Division, General Motors Corporation, Harrison, New Jersey.

HYATT ROLLER BEARINGS

NEWS BRIEFS

Yes, there is a Santa Claus—A pre-holiday gift for Columbus, Ohio, motorists was ordered by city council, which approved plans to permit free parking for Christmas shoppers on the site of the proposed Veterans Memorial Coliseum. The site will hold from 200 to 250 autos, and has been leased from the New York Central Railroad for this purpose for $1.

Students to go underground—Construction work now going on at Northeastern University, Boston, Mass., will make the university unique among higher educational institutions. Besides a $1,500,000 library, construction has begun also on a series of tunnels that will make it possible for students to pass from one building to another without going outdoors. The tunnels are expected to be ready for use by the 11,000 students in 1952.

Thousands of jobs—Two construction projects less than 70 miles apart in southeast Washington state will be employing a total of 9,000 men soon. The Atomic Energy Commission, now using 5,000 construction workers in a $100,000,000 program at its Hanford Works near Richland, expects to reach a peak of 6,000 before completion at the end of 1951. The Corps of Engineers, now using 1500 workers at McNary Dam, will need an estimated 3,000 on a $50,000,000 contract.

Maybe it ran on its reputation—Public works engineers in British Columbia have been chuckling over a widely-circulated advertisement for a well-known automobile. The ad described the trip of a Seattle couple to Fairbanks over the Alaska Highway. An accompanying map showed the route from Seattle to Vancouver, to Prince George, to Dawson Creek, to Fairbanks. "It certainly must be a good car," an engineer said, "but I don't understand how they travelled over the 47 miles on the John Hart Highway that hasn't been built yet. The car must have been amphibious, too, to get across the Parsnip River."

Concrete souvenirs—Portland Cement Association will soon be distributing little chips from a block of the first concrete street in the United States. The famous street in Bellefontaine, Ohio, has served for nearly 60 years, still is in use. The city council granted the association's request for a block of the concrete, providing replacement is satisfactory.

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SUPERIOR *Batching Plants*

• More efficient batching plants will effect savings for you in operation and plant costs. Heltzel's specialized engineers work out your specific problems on both stationary and portable installations, ranging in capacities from 30 to 500 tons. Why not let a Heltzel representative explain exclusive features and Heltzel's better construction.

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- BULK CEMENT PLANTS (Portable and Stationary)
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Heltzel BUILDS IT BETTER

• Recirculating cement system — fills sealed cement compartment (right), and then automatically switches to loading of storage tank.

• Ohio Conveyor system — stock-piles aggregates and loads bin with one elevating conveyor and one tunnel conveyor. Diverters unload incline conveyors to stock piles at any specified points.

• 1000 bbls. capacity cement storage (others 600 to 2000 bbls. optional) assures continuous operation of plant.

• Heltzel batchers, automatic or manually operated, are designed for speedy operation and uninterrupted service. Complete plants, including conveyor systems, are Heltzel designed and built for uniform quality.

• Trouble-free cement valves, exclusive with Heltzel, at all cement discharge points assure smooth flow through narrow passages.

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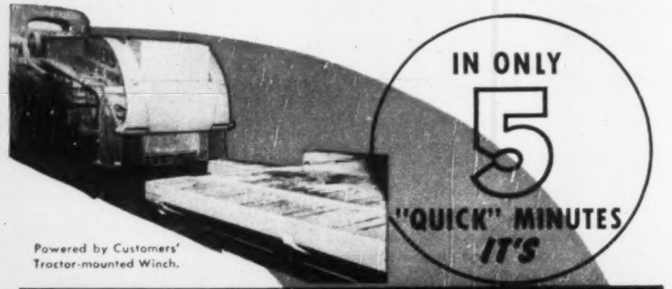

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Frame is lowered to ground without need of blocking. Maximum height of 16" assures rapid, safe loading of equipment.

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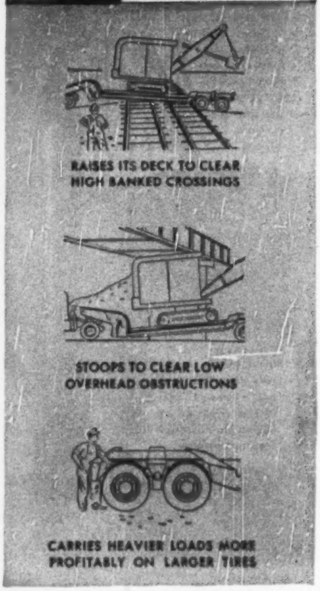


RAISES ITS DECK TO CLEAR HIGH BANKED CROSSINGS

STOOPS TO CLEAR LOW OVERHEAD OBSTRUCTIONS

CARRIES HEAVIER LOADS MORE PROFITABLY ON LARGER TIRES

Rogers Tilt-Top trailers embody a special shock absorber which cushions the loading and unloading action. Various sizes available.

Les Miserables—Tourists in Paris can now take a boat trip in the city's sewers. The main sewer is a regular "Cloaca Maxima," as the sewer of ancient Rome was called. Tourists pay about five cents to the sewerman, descend a winding iron staircase and find themselves in a stone-arched gallery. A small motor boat waits on the stream of polluted water, which is about 11 ft wide and three ft deep. The arched ceiling is 10 ft above water level. An occasional miniature drawbridge spanning the sewer opens up as the boat chugs upstream slowly from the Madeleine to the Place De La Concorde, beneath the famous Rue Royale.

Use 1840 survey in 1950—The Illinois Division of Archives has found a new use for note books which surveyors used in the 1840s in platting the old Illinois and Michigan Canal, which connected the Illinois River at Peru, Ill., with Lake Michigan at Chicago. They have been found valuable in locating the boundary lines for the Southwest Expressway, a new motor superhighway connecting Chicago with southwestern points, over the route of the abandoned bed of the canal. The boundaries of the canal are practically the same as will be needed for the new expressway.

Save that tooth—Mayor Thomas D'Alesandro of Baltimore, Md., has ordered the addition of fluorine to the city water supply in an attempt to reduce tooth decay among Baltimore children.

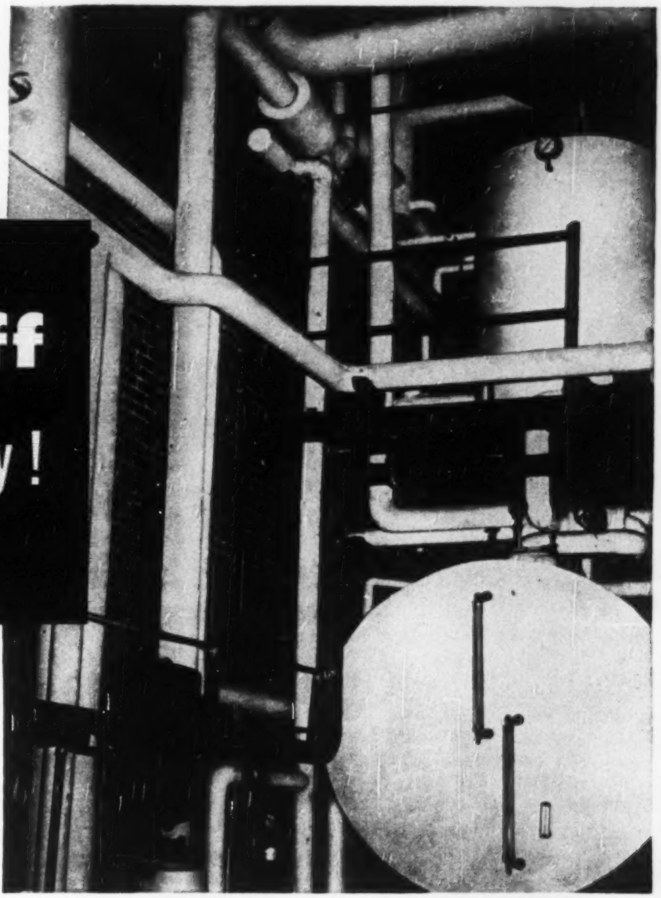
Flood not so bad—A typographical error in our account of the American River flood in Sacramento, Calif. (ENR Nov. 30, page 25) made the flood appear a good deal worse than it really was. It should have been stated that the 45.75 ft stage was some 7 ft above the overflow point instead of the much higher figure as printed.

Correction—In the "cover box" for the issue of November 23 (p. 12), an error was made in designating the highways meeting at the three-way intersection shown. Correctly, the top bridge shown carries Main Street, the lower bridge State Highway Route 4. The New Jersey Turnpike is located under the two bridges, and grading work on it is shown in progress. The two bridges were built by the New Jersey State Highway Department. Design for the bridge structure—difficult because of necessary curvature and skew—was prepared by D. B. Steinman of New York City, who also served as consulting engineer on the project.

Insulation Contractor:
Guy M. Beaty & Co.
Charlotte, N. C.

Hot stuff

kept that way!



How United States Plywood Corporation conserves steam — cuts heating costs — with K & M "Featherweight"® 85% Magnesia Insulation

The production of the United States Plywood Corporation's famous *Craftsman's grade* of Weldwood Plywood calls for steam — and plenty of it. In the photo above, you see the Deaerating Feed Water Heater and the Condensate Tank in U.S. Plywood's Orangeburg, S.C., plant. And you can see how K&M "Featherweight" 85% Magnesia Insulation has been applied to these heating units, as well as to the lead lines and pipes of the steam system. Throughout this entire plant, "Featherweight" 85% Magnesia is on the job conserving steam in lines and equipment; keeping heating costs down.

K&M "Featherweight" Insulation has been doing jobs like this for more than 60 years — under every conceivable installation condition. In factories, power plants, oil refineries, chemical plants, hospitals, steamships — wherever exacting steam temperatures must be maintained — you'll find "Featherweight" 85% Magnesia.

This highly efficient insulation combines basic carbonate of magnesia with asbestos fibers — is light-weight, strong, fire-proof — time-proved for all steam temperatures up to 600° F. Ask your local Keasbey & Mattison Distributor for complete information; or, write us direct.

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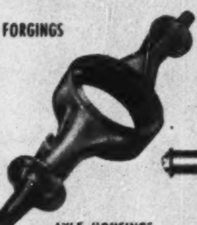
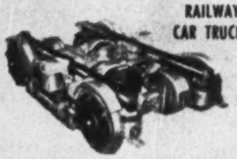
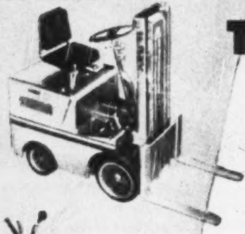
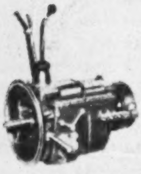
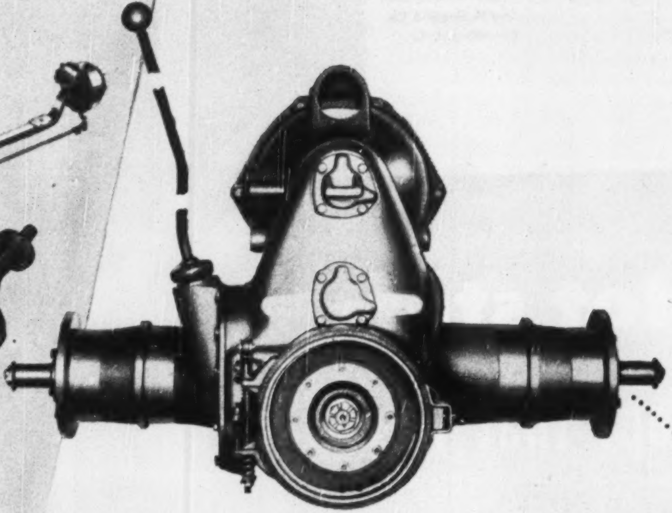

AXLE HOUSINGS


RAILWAY CAR TRUCKS

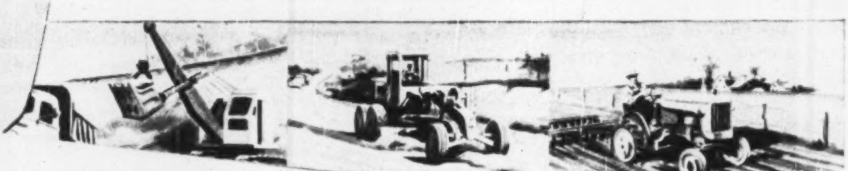

INDUSTRIAL TRUCKS AND TRACTORS


TRANSMISSIONS



HERE IS AN EFFICIENT, HARD-WORKING EXPLANATION OF *Why it pays Industry* TO WORK WITH CLARK

This transmission and axle unit for a road grader machine contains certain exclusive characteristics that add immensely to its value and nothing to its cost—characteristics common to the whole family of Clark Products . . . Among these is Clark engineering experience —gained from 35 years of competent usefulness to Industry in the basic field of power transmission . . . Many manufacturers of agricultural and industrial equipment have found it practical and profitable to *use Clark engineering* in their development of new products and modernizing old ones. It is available to you also—without cost or obligation.



CLARK EQUIPMENT COMPANY

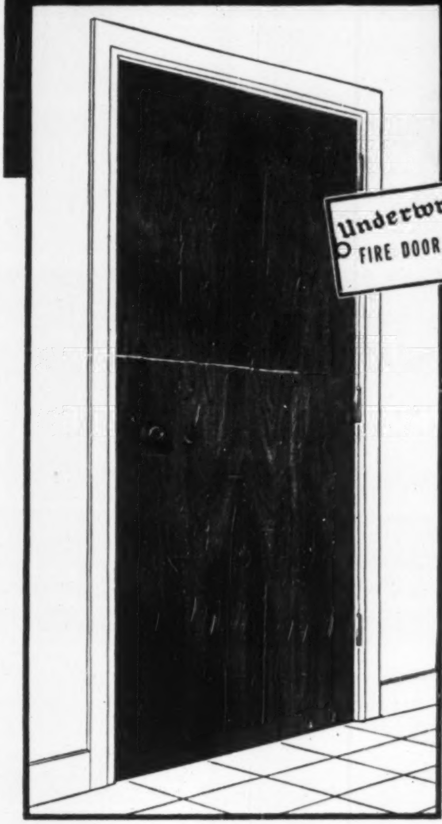
BUCHANAN, MICHIGAN • *Other Plants: Battle Creek, Jackson, Michigan*

New KAYLO® FIREDOOR

Provides the Beauty of Natural Wood

—Plus

Rated Fire Protection



Underwriters' Laboratories, Inc.
INSPECTED
FIRE DOOR FOR OPENING IN VERTICAL SHAFT
NO. S [redacted]

For both public and residential buildings, the new Kaylo Firedoor offers these important advantages:

FIRE PROTECTION—Built around an incombustible Kaylo core, using fire retardent treated wood edge bands, the Kaylo Firedoor carries an Underwriters' fire rating for Class B and C openings.

HANDSOME APPEARANCE—The wood veneer-faced Kaylo Firedoor equals the richness of the most striking conventional wood doors.

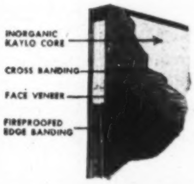
GREAT DIMENSIONAL STABILITY—A Kaylo Firedoor does not warp, swell or shrink—even when subjected to heat or cold, dampness or dryness.

HIGH INSULATING VALUE—Installed in an exterior opening with weather stripping, a Kaylo Firedoor insulates more effectively than a conventional door, *plus* a storm door.

LIGHT WEIGHT PLUS STRENGTH—A standard 3′4″ x 7′ Kaylo Firedoor weighs only 90 lbs., but can support an 8000-lb. distributed load with only ½-inch deflection while loaded. After unloading, there is no permanent deflection.

Get all the facts now about the new Kaylo Firedoor.

CROSS SECTION OF A KAYLO FIREDOOR



Waterproof glue is used to bond veneer cross banding to the Kaylo core and face veneer to cross banding. Edge bandings are strips of solid hardwood, which have been treated with Protexol Class A fireproofing agent.

KAYLO
FIREDOOR

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Gentlemen: Please send me literature on the new Kaylo Firedoor.

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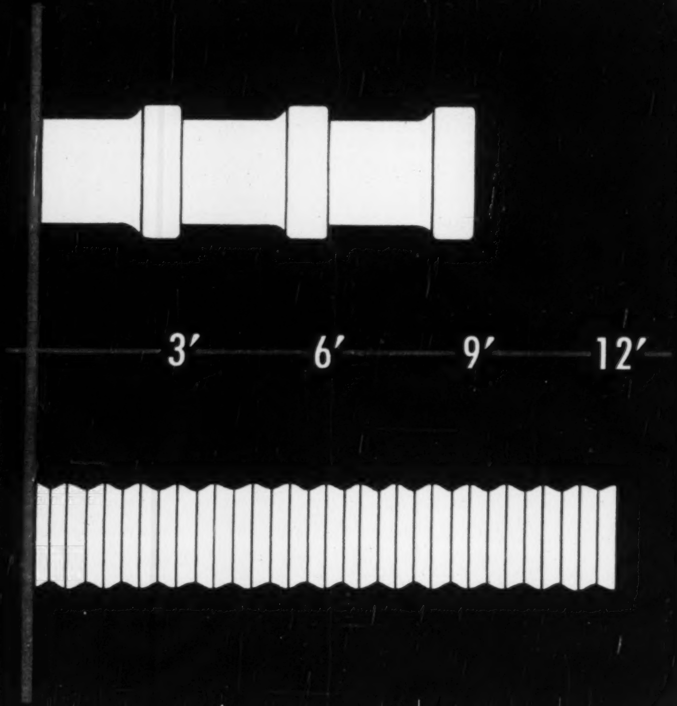

Figures on a large Eastern Airport show that experienced contractors recognize the labor-saving features of ARMCO Corrugated Metal Pipe. Average low bids put 4 feet of paved and coated corrugated metal pipe in place for the price of 3 feet of the alternate short section, rigid pipe. Sizes ranged from 15- to 24-inch diameters.

Make your bid dollar go 33⅓% farther

Contractors have found that a dollar goes farther when they figure bids with ARMCO Corrugated Metal Pipe. It means lower bids with adequate profits and puts you in a sound competitive position.

Experience shows that ARMCO Pipe saves money in many ways. Although amply strong it often weighs only one-tenth as much as more massive types. This means low handling and hauling costs. Job costs are low because unskilled labor quickly makes the installation. There is no breakage, no curing, no waste, no delay.

Individual sections of ARMCO Pipe or PIPE-ARCH are supplied in any length that can be hauled or handled. No large and expensive equipment is required for installation. A few men with a rope sling or a small A-frame can handle the largest structure. Trenches need only be wide enough for men to work since there are no bells or massive joints that require extra digging. Connections are made with simple band couplers. End finishing is easy and inexpensive with prefabricated ARMCO End Sections.

Bid low on that next contract with ARMCO Corrugated Metal Pipe. You will find it ideal for highway, railway, airport or municipal installations. Write for complete information. Armco Drainage & Metal Products, Inc., 1465 Curtis Street, Middletown, Ohio.

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ARMCO DRAINAGE STRUCTURES ARMCO

THE CONSTRUCTION WEEK

COPPER CUTBACK—By March, contractors will get 80% of the copper they used in average months during the first half of 1950, under the National Production Authority's copper-cutback order M-14. Because contractors' requirements vary so much from month to month there will be a great many hardship cases in time to come. The contractor can apply to NPA for an adjustment, however.

NO DO'S FOR HOUSING—Armed services' pleas for extension of priority ratings to rental housing projects have been turned down by NPA. (Under the Wherry Act the projects—at military posts—are built by private renting organizations.) Nevertheless the Defense Department still is fighting for the housing DO's. It hopes to have the help of materials priorities to attract bidders and get low prices on projects soon to be advertised.

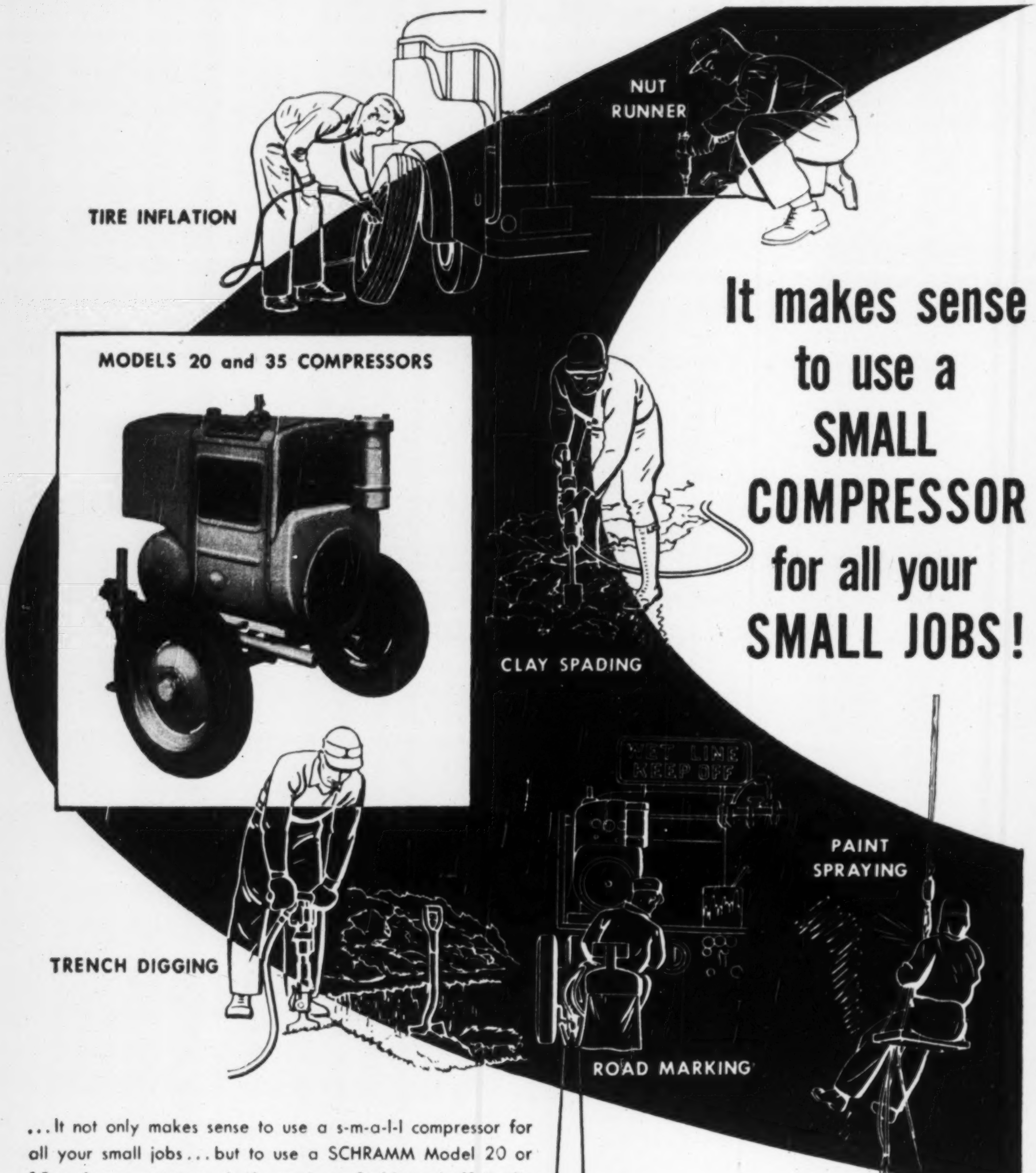
JURISDICTION IN THE MINES—Labor's eyes are on the coal mines. Construction men in United Mine Workers' District 50 have been doing some work at mines, in competition with AFL building trades unions. UMW denies intent to take jurisdiction over all of this work, explaining the incursion merely as a means of getting UMW-operator contract benefits for District 50 men. However, some operators fear a bitter jurisdictional dispute between the two labor groups.

ANTITRUSTERS PLEASED—In the gypsum-pricing case (ENR Dec. 7, p. 26) the Supreme Court has taken a long step toward approving a theory that the anti-trusters have been trying to establish for years—that is, that it is illegal for a patent owner to fix the price at which his licensee must sell the patented product, or the product made with his patented process, or his patented machine.

DON'T BOTHER TO PATENT IT—Patent-conscious engineers and construction men may have fewer worries about infringements as a result of a new Supreme-Court decision. Gadgets, the Court says, are not patentable. This time the gadget was a three-sided tray used at super-market cashiers' counters; many more items were cited as examples of gadgets, to indicate the breadth of the Court's decision. Occasion was taken to rebuke the Patent Office for straying from its proper function, which is to recognize true invention. The court said, "The function of a patent is to add to the sum of useful knowledge . . . this patentee has merely brought together segments of prior arts and claims them in congregation as a monopoly."

WILL JERSEY ABANDON CONCRETE?—Governor Driscoll (N. J.) has been an interested observer of the New Jersey Turnpike Authority's procedure leading up to selection of bituminous concrete for its toll road (ENR Dec. 7, p. 28). Commending the thorough manner in which the Turnpike Authority went into the question, the governor said he thought asphalt could be used on other highways, especially where traffic was less than is expected on the turnpike.

ARBA DILEMMA—Can the American Road Builders Association maintain its effective works during the lean years and expand them afterwards? Interested observers hope so. To date, ARBA has been the construction industry's only national trade group designed to carry the story of highway needs to the general public. In the face of budget curtailment (ENR Dec. 7, p. 28) from $250,000 to $150,000, the association's directors are hopeful of finding ways and means out of the dilemma.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TIRE INFLATION
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It makes sense to use a SMALL COMPRESSOR for all your SMALL JOBS!
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CONSTRUCTION TRENDS

INDUSTRIAL BOOM: STRONG AND LONG

The long-predicted boom in industrial construction is well under way—and promises to leap ahead in 1951.

Engineering News-Record's contracts for industrial construction have soared since mid-year. After averaging less than $100 million a month, they jumped to $221 million in August and stayed high through October. November was off slightly—partly due to Thanksgiving—but will still total almost $187 million.

Behind this is the fact that industry is embarked on its third great wave of expansion since 1940.

Government planners, and others, were sure that the forced growth of industry in World War II would leave many plants that just couldn't be used. But business set out to meet customers' demands—and found it had to build a lot of new facilities. That resulted in the 1946-48 boom in capital expenditures. By early 1949, many companies thought they had caught up with their customers. But business swung up late in the year—spurred in part by the surge of homebuilding—and kept on going at a record-breaking pace.

By early this year, many businessmen began to feel that they still didn't have enough capacity to meet all demands. The boom in homebuilding, autos, and appliances, for example, kept the steel industry running above its rated capacity month after month.

So business started in to expand again—as is shown in ENR's contract award figures. They are backed up by results of a national survey, made by Business Week and the McGraw-Hill Department of Economics. It shows business has sharply raised its plans for buying new plants and equipment—and plans to keep on buying in 1951 at a high rate.

Here are the figures, by industries, on 1950 spending and 1951 plans:

Industry	Spending Reported Now	1951 Plans	Percent Change 1950-51
	(millions of dollars)		
Manufacturing	$7,300	$8,770	+20
Chemicals	1,220	1,500	+23
Petroleum	675	775	+15
Food	645	700	+ 9
Machinery	540	640	+19
Steel	500	650	+30
Autos	790	925	+17
Textile	420	460	+10
Electrical Machinery	150	200	+33
Manufacturing (*cont.*)			
Transportation Equip.	90	170	+89
Other Manufacturing	2,300	2,750	+20
Railroads	1,160	1,240	+ 7
Electric & Gas Utilities	3,200	3,200	
Other Transportation and communications	1,770	1,600	−10
Mining	660	775	+17
GRAND TOTAL	**$14,120**	**$15,585**	**+10**

But these figures—and ENR's contract awards—tell only part of the story.

For the boom so far has been largely to meet civilian demands—plans and contracts for new facilities for defense production are only beginning to shape up.

And next year is likely to see these plans stepped up sharply.

Businessmen for the most part still don't know what they will be called on to produce for mobilization. More than half of the companies surveyed by McGraw-Hill said that they would need to add still more facilities to handle defense contracts.

In spite of this, Washington has been deluged with inquiries about defense plants. The National Security Resources Board has been swamped with applications for tax relief on facilities for defense production. These are requests for five-year amortization of new buildings and equipment that will be used in producing for the military services and for aid to our allies.

As those claims begin to filter through—and defense contracts spread more widely through business—there'll be another surge of industrial contracts. In addition, the government is pressing basic industries to expand their facilities. It is calling for facilities to produce another one billion pounds of aluminum—adding perhaps 70% to existing capacity. It is asking the steel industry to raise its plans for adding almost 10 million tons of capacity in the course of the next two years.

A series of other industries—from non-ferrous metals to electric power—are being asked to step up the pace of their expansion.

All this promises to add up to a third huge wave of industrial expansion—and one that may well top both the war and postwar programs.

By all the signs, last summer's upsurge in contracts is only the start of a construction program that may well run for years to come.

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LIMA TRUCK CRANES

ADDS EXTRA SPEED
AND ECONOMY TO
MATERIAL HANDLING JOBS

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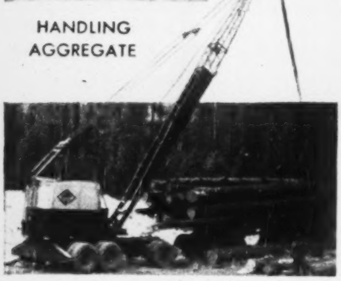
★ The same dependability and peak performance associated with LIMA Crawler type equipment, is available in Rubber-Mounted Units for faster movement between jobs, and reduced haulage costs. Wheel-Mounted types available in 20 and 35 ton capacities, Truck-Mounted type—with separate cab and engine, available in 20 ton capacity.

BUILDING CONSTRUCTION

MATERIAL HANDLING

SETTING FORMS FOR CONCRETE



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EDITORIALS

Warning from Korea

Defeat in Korea is an awakening to reality—to the real possibility of a third World War, to attacks on the U. S., and to the dire need of strengthening our armed services and our war-making potential. It is a tragic price to pay—just as Pearl Harbor nine years ago last week was tragic—but it will not be in vain if it blasts away the lethargy and the wishful thinking that has characterized public opinion and highlevel actions all Fall.

There has been procrastination—in fixing military objectives and in letting defense contracts.

There has been political muddling—in setting up and staffing necessary government agencies, in coming to grips with manpower and inflation problems.

There has been pleasant but pernicious dreaming of Russia as a bluffer who wasn't ready for active aggression.

The defeat in Korea shows up such lack of action, and complacent thinking as preposterous. But if the defeat is accepted as the warning that it is, the strength of America can yet be exerted to preserve world peace and assure our own defense. Fortunately the sterner measures needed seemed to be in the making as we went to press.

Readiness for Civil Defense

One of the quick reactions to events in Korea was the introduction in Congress of an administration-sponsored bill for civil defense. It comes none too soon, for most states and cities were badly in need of help and guidance—or thought they were, which amounts to the same thing.

Actually there has been information and incentive aplenty to permit much more progress in civil defense planning than has been recorded. Chronic dependence on Washington has blinded city officials to this fact, as was evident from the majority of remarks by mayors at the meeting of the American Municipal Association in Washington last week. In fairness, however, there were some who agreed with Mayor Hynes of Boston who said "we do not expect the federal government to wet-nurse us and are prepared to spend the last farthing within our means to assure our survival."

Somewhere between these two extremes rests the proper approach to civil defense planning, and hearings on the new bill will have a salutary effect in establishing a workable policy. Whether this shall include placing civil defense within the organization of the military, whether great communal bomb shelters are justified (which is doubtful), how the cost and procurement of medical aid and fire fighting equipment are to be handled: These are questions that the final bill must dispose of. In the meantime, however, local initiative can be effective in setting up those phases of civil defense that no amount of advice and help from Washington can alter or aid.

Not all states, for example, have the necessary legislation for a civil defense set-up. Only a few of those that do have appointed a head and established an organization. Fewer still have an organization ready to function.

That it is not impossible to have done all of these things without federal assistance is demonstrated by New York State. There, under the able and forthright leadership of General Lucius D. Clay, state director of civil defense, cities have been prodded and guided into more effective activity than anywhere else in the country.

Moreover, and of particular interest to the construction industry, the State Department of Public Works has its organization ready to go on a 24-hour alert at a word from General Clay. Meshed with the state organization are the manpower and equipment of over a thousand contractors in the state. Inventories of these facilities were made two months ago, transferred to punched-card record systems, and the machines even assigned to specific reconstruction task forces. Exclusive of the five counties comprising New York City, which did not cooperate as rapidly as the rest of the state, there were 36,399 pieces of equipment on the record books by the middle of October. These machines and the men to man and direct them can be ordered to scenes of disaster by special telephone and radio facilities established in Albany and each district office. Emergency phone numbers are listed for all key personnel.

D. B. Tallamy and the chairman of his public works civil defense committee, B. A. LeFeve, do not claim that the organization is ready for any emergency, but they point with pride to its functioning during the November 25 windstorm. Then, in accordance with the same plan contemplated for a bombing attack, J. J. Darcy, the department's district engineer on Long Island, upon receiving a call for assistance from Westhampton Beach, had a contractor's heavy earthmoving equipment closing a break in a barrier beach within an hour. Shortly thereafter a large dredge was on the job.

There is nothing in New York's emergency set-up that other states, containing one or more of the country's 150 prime bomb target areas, cannot match. Without waiting for federal assistance, readiness for civil defense needs to be pushed with all speed. If and when a federal civil defense bill is passed, its requirements and suggestions can then be readily embraced. Meanwhile city and state governments are the sole masters of their own readiness to cope with disaster. The portent of Korea is that no less urgent view of the present situation is tenable.

A Better Bond for Concrete Jobs

with Republic's Diamond ◇ Design Concrete Reinforcing Bars

● The reason: higher and more closely spaced lugs or deformations designed to exceed "Minimum Requirements for the Deformations of Deformed Steel Bars for Concrete Reinforcement"—ASTM Specification A-305-49, adopted June, 1949—the first standard specification to define surface deformations.

Thus you are assured of greatly improved bonding properties and reinforcement anchorage. You may be able to save steel—to cut bending and installation costs.

Republic's Diamond Design Concrete Reinforcing Bars are rolled from new billet steel only—at Cleveland, Buffalo, South Chicago and Gadsden. Check the table below for foot weights and new size designations. Write us for further data.

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GENERAL OFFICES • CLEVELAND 1, OHIO
Export Department: Chrysler Building, New York 17, N. Y.

Size Number	Cross-Sectional Area, sq. in.	Nominal Diameter, in.	Foot Weight, lbs.
3	0.11	0.375	.376
4	0.20	0.500	.668
5	0.31	0.625	1.043
6	0.44	0.750	1.502
7	0.60	0.875	2.044
8	0.79	1.000	2.670
9	1.00	1.128	3.400
10	1.27	1.270	4.303
11	1.56	1.410	5.313

REPUBLIC STEEL ®

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CONCRETE REINFORCING BARS

ENGINEERING NEWS-RECORD

DECEMBER 14, 1950 VOL. 145 NO. 24

Urge road officials to protect present stake in highways

American Association of State Highway Officials urged to concentrate expenditures on existing system during present emergency

V. T. Boughton
Associate Editor

Concentration of available federal and state funds on the existing system of main highways to make certain that it does not go to pieces under the load put on it by defense activities was the chief theme of the highway officials meeting in Miami last week. Unprecedented traffic can be expected as the nation expands its defense effort, the highway administrators and engineers were told, which means that every available dollar must be spent on insuring the adequacy of the pavements that must carry that traffic.

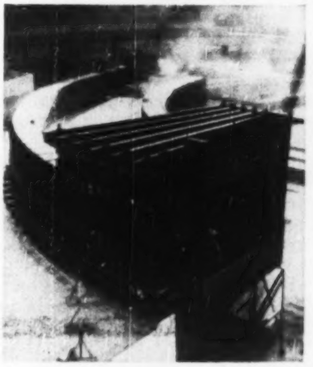
At the opening general meeting of the American Association of State Highway Officials on Dec. 4, D. C. Greer, state highway engineer of Texas and president of the association, said that it is obvious that the state highway departments lack funds to do an adequate job but the lack is no excuse for sitting back and bemoaning their fate. All must realize that the present emergency may last for a long time. This means, he said, that certainly 40% of all available money, and possibly as much as 60% must be concentrated on protecting the present investment.

Mr. Greer urged his hearers to check the small leaks that in the aggregate drain away a large amount of badly needed road money. He cited such things as underweight registration of trucks, illegal claims for gas tax refunds and abuse of motor vehicle reciprocity in the purchase of license plates as examples of such leaks.

• Office of Transportation—Philip B. Fleming, undersecretary of commerce for transportation, told of the creation of the Office of Transportation and of the Subcommittee on Transportation Production Administration to take care of the needs of all types of transportation for materials that are expected to be in short supply. Fleming urged the highway engineers to alter their designs, if necessary, to reduce or eliminate the use of scarce materials. Gen. Fleming also stressed the need for maintaining existing highways as essential elements in the nation's defense planning. During World War II, he said, there was a strong tendency to look upon highways as expendable. No such short-sighted view should be taken this time. Adequate highways are even more important now than they were then due to greater dependence on them for the movement of defense materials.

• Control of overloading—Fleming cautioned against letting the defense program become the excuse for operating many overloaded trucks on highways that can be damaged by frequent

(Continued on page 24)



MOST POWERFUL ATOM-SMASHER —Structural steel framework rises to house a 10,000-ton magnet for the University of California's great bevatron, claimed to be 16 times as powerful as the best atom-smasher in use. Atomic Energy Commission expects the electrically energized magnet to accelerate nuclei of hydrogen atoms to energies of 6 billion electron volts. (Acme Photo.)

Korean reverses spur civil defense action

Congress expected to put temporary agency on permanent footing — Plan building communal air-raid shelters

Korean reverses have built a fire under civil defense. The short session of Congress aims:

(1) To put President Truman's temporary agency on a permanent basis.

(2) to authorize $1.67 billion of federal money for a program totaling $3.1 billion—to be completed by mid-1953.

More than $2 billion of the total will go into construction of communal shelters—for use by large groups of people.

State matching funds will furnish half the $2.25-billion cost of these large units.

• Lehigh gets research—Research and planning for the shelters are in the hands of the Army Engineers. To speed the final completion of work, they have already subcontracted part of the research job to Lehigh University.

Blueprints will be ready within three months—according to the already approved schedule of the Civil Defense Administration (ENR—Dec. 7, p. 28).

James J. Wadsworth, acting deputy administrator of CDA, last week stated before the Joint Atomic Energy Committee that the 2½-year program would take $3.1 billion. States and localities would be required to put up 46% of the cost, or $1.43 billion; while the federal government would do its part by providing the remaining 54% or $1.67 billion.

Other items besides shelters on Wadsworth's list of what he called "atomic-age" civil defense were these:

Heavy equipment for engineering, firefighting, transportation and communications—$200 million, half of which will be paid by the federal government.

Regional stockpiling of materials—Engineering and medical supplies, blood plasma, etc., amounting to approximately $400 million, all of which have to be met by federal funds.

Control centers and air-raid warning equipment—$34 million, to be paid out of federal funds.

Local personnel and administrative cost—$200 million, to be met in full by the local communities without federal aid.

Construction Equipment Outlook: 1951

Essential needs of contractors will be met in 1951, construction equipment manufacturers believe. That is the report brought back by H. W. Richardson, editor of CONSTRUCTION METHODS, following interviews with seventeen top executives of leading equipment companies.

In his December issue Richardson points out problems faced by equipment men, and indicates that all predictions are off in the event of full mobilization, crippling strikes, or government controls.

Discrepancies are noted between what manufacturers expect to supply the military—(between 10 and 20% of their output)—and the 25% the military expects to absorb. In this pinch manufacturers plan expansion of output, or voluntary controls.

• **Bigger output and allocation**—Plant capacity is being stepped up, and in some cases, notably the Caterpillar Tractor Co., voluntary allocations are being adopted.

Manufacturers point out that steel, copper and some alloys are in short supply.

Some firms are importing steel. One manufacturer appealed to his distributors for help in obtaining steel. They responded and turned up a surprising amount including cold rolled shafting in various spots throughout the nation.

Also scarce are transmissions (especially sliding transmissions), radiators, bearings and, in some areas, engines. Electric motors are critical.

Big tires needed for heavy equipment are expected to be in reasonable supply. Although a recent government order restricts civilian rubber for construction by 20%, tire makers see a good supply of natural rubber ahead and a great potential of synthetic.

Tire companies are allowed replacement credit for rubber furnished on Defense Orders. Equipment manufacturers will have no trouble on tires for the military.

To meet other supply problems manufacturers may change design. One is switching from sliding transmissions to the constant mesh type. With bearings a headache, redesign may help.

• **Demand high**—Typical are the following comments on the demand situation: "We're selling all we can make." "Sold out for all next year." "Booked solid for two years' production."

This situation may reflect some placing of identical orders with several firms. Firmness of current orders on the books is in question. But a manufacturer who demands heavy down payments notes no slack-off.

Manufacturers warn that although supply should be adequate in the period ahead barring unpredictable exigencies, contractors should plan ahead. Quick expansion of equipment holdings on receiving a big contract will not be possible in 1951.

◆

Rainmakers may be put under federal control

Legislation to put control of artificial rainmaking by chemical seeding of clouds under a federal commission similar to the Atomic Energy Commission is being readied for consideration by the 82nd Congress.

Sen. Clinton Anderson of New Mexico is sponsoring the measure.

Anderson's bill has not been put into final draft, but the broad outlines are something like this:

(1) Creation of an independent commission with authority to license seeding experiments.

(2) Power to enforce rules and regulations.

(3) Federal exemption from liability for damages of any cloud seeder who has a license to run an experiment.

(4) Regulation of rates and charges paid to experimenters.

(5) Fostering of private research and experimentation under federal supervision.

Anderson outlined the need for federal regulation and research in conferences with the President's special commission on water resources, headed by Morris Cooke. He has had the aid of scientists in drafting the legislation.

AASHO meeting . . .

(*Continued from page 23*)

overloading. There will be times when the military may require the movement of abnormally high loads, he said, but the Department of Defense expects to see that such overloading is kept to a minimum.

• **Policies to be avoided**—Thomas H. MacDonald, head of the Bureau of Public Roads, also stressed the dangers inherent in overloading. There are two policies that were characteristic of post-war periods that will be disastrous if repeated now, Mr. MacDonald said. "The first was inclusion of highways in orders to cease construction unless certified by some control authority, and the second was disregard of state legal load limits, particularly axle-weight concentrations for military hauling or claimed military cargoes."

• **Priorities for road and street work**—MacDonald said that Secretary Sawyer has designated the Bureau of Public Roads as the claimant agency to present to the Department of Commerce the requirements of materials of all highway construction and maintenance, including urban streets constructed with or without federal aid. Highway departments, he said, must determine whether each project in their programs can be held in service over a period of ten years by maintenance, or whether reconstruction will be required within that period.

• **Uniform truck limits sought**—James K. Knudson, head of the Defense Transportation Administration, made a strong plea for much greater uniformity among the states in size and weight restrictions on trucks. Departing from his prepared paper, Mr. Knudson assured his audience that he holds no brief for the truckers whose overloads damage the highways.

What he seeks is elimination of needless restrictions that cut down the pay load trucks could carry without damage to the pavements.

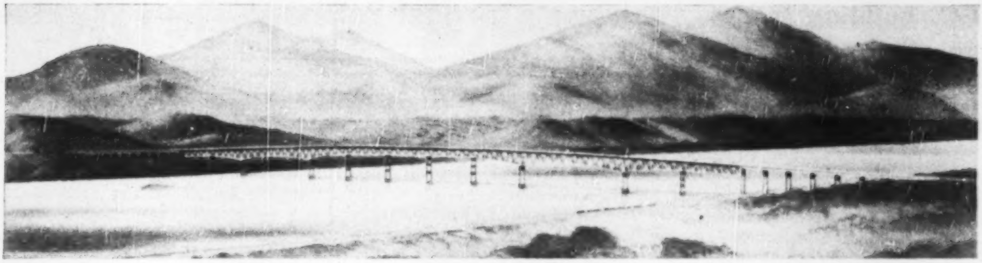
Taking as his example the eleven western states that apply the AASHO size and weight requirements, Mr. Knudson said that trucks in those states can carry pay loads as high as 11.5 tons without violation of the restrictions, whereas the average for the rest of the country is 9.3 tons.

• **Too much federal control**—The current increase in the percent of each federal-aid dollar used for federal supervision of highways was strongly criticized by W. Hume Everett, chairman of the Wyoming Highway Commission, at a meeting of the committee on Administrative Practices. Everett also criticized the state highway departments for letting political considerations play a dominant role.

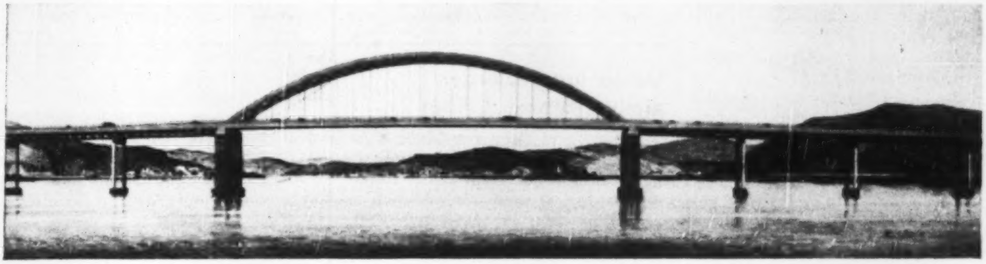
• **R. H. Baldock honored**—Presentation of the George S. Bartlett Award to R. H. Baldock, state highway engineer of Oregon, was made at the opening session by Hal H. Hale, executive secretary of the assn. Established in 1931 jointly by the AASHO, Highway Research Board and the American Road Builders Assn., this award is for distinguished contributions to progress.

• **New Officers**—J. A. Anderson, chairman of the Virginia Highway Commission, was elected president of the assn. to succeed D. C. Greer of Texas. B. D. Tallamy, New York State superintendent of public works, was elected first vice president to succeed Anderson. Ray F. Smock, secretary of highways in Pennsylvania, was named regional vice president for the first region. T. J. Kauer, Ohio director of highways, vice president for the third region.

(Technical sessions of the AASHO meeting will be reported next week.)



CATSKILL BACKGROUND—Artist's conception of Kingston-Rhinecliff bridge, to be fourth Hudson River crossing owned by New York State Bridge Authority.



TAPPAN ZEE, widest part of Hudson River, will be location of New York Thruway Authority's link in its proposed Buffalo-New York express highway.

Two new bridges for the Hudson

Kingston-Rhinecliff has two 800-ft spans

Decision was announced last week by James F. Loughran, engineer-chairman of the New York Bridge Authority, to make the proposed Kingston-Rhinecliff Bridge over the Hudson River a 7850-ft continuous-deck structure with 800-ft spans over the two channels. Earlier studies (ENR Sept. 1, 1949, p. 167) had contemplated a 1700-ft suspension span between the two towns.

Both location and design have been approved by the New York State Department of Public Works.

Army Engineer approval for a 135-ft vertical clearance has been secured, and it is contemplated that the structure will be started in time to be completed by the end of 1952.

The state will build about 6 mi of four-lane approaches on each side of the river to connect the new bridge with existing north-south highways, including the present Taconic State Parkway on the east and the proposed New York Thruway on the west.

Designs for the bridge have been made by D. B. Steinman, New York. The new bridge, estimated to cost $18,500,000 exclusive of right-of-way and engineering, will be the fourth owned by the New York Bridge Authority in the 120 miles between New York City and Albany.

Thruway bridge features floating-box foundations

Close on the heels of the Kingston-Rhinecliff Bridge announcement, plans for a second Hudson River bridge were revealed to the public. The second crossing will connect eastern and western sections of the proposed New York City-Buffalo New York State Thruway. And it will be built across one of the widest reaches of the river, Thruway officials said last week.

The new bridge will be a deck-truss structure for most of its great length, with a 1,100-ft tied-arch center span, and with a 5,000-ft earth and rockfill causeway on the Western approach. The trusses will be founded on a sealed, hollow caisson of concrete, resting on the channel bottom and depending for support partially on the buoyancy of the water and mud. The boxes will be given additional stability by concrete piles driven into a stable earth stratum. Clearance at the center will be 135 ft over mlw.

The "box" foundations are similar to those worked out for Pier 57 on New York City's Hudson River waterfront (ENR Jan. 26, p. 40).

Cost of the new bridge is estimated at $50,000,000. Financing has not been completed.

The bridge (on a section of the river known locally as the Tappan Zee) will stretch from the joint boundary of Nyack and Grandview in Rockland County, N. Y. (on the west side of the river) to a point at the southern edge of Tarrytown. Connections to existing main and secondary highways will be provided.

Designs have been prepared by Madigan and Hyland, New York.

◆

Freyssinet prestress method now available in U. S.

The Societe Technique pour l'Utilisation de la Precontrainte (S. T. U. P.) of Paris, whose chief design engineer is Eugene Freyssinet, inventor of the method of creating permanent prestresses in concrete, has appointed Randall M. Dubois, president of the Intercontinental Equipment Co., Inc., 57 William St., New York, as its sole representative in the U. S. and Canada.

Mr. Dubois announced that his technical staff is prepared to cooperate in every way possible with consulting engineers and public officials in providing information on prestressed concrete as developed and put into practical application in more than 250 projects abroad.

He also will make available to all contractors interested in bidding on a prestressed concrete project the necessary "know-how" and equipment developed for the Freyssinet method. Dubois has long been associated with French commercial and engineering matters related to American business.

AGC, building trades sign master agreement

Only contractor ratification needed for labor peace with six trades; wage hikes granted will run to May 1952

Peace, for at least 17 months, seems assured on the southern California construction labor front.

A new master agreement between the AGC-Building Contractors Association and the six basic building trades AFL unions was signed by union men Nov. 30. An AGC spokesman said that all that is necessary now is ratification by the contractors—which seemed assured.

The new contract, ending a carpenters' walkout which began last July 10, provides for a 15-cent hourly wage hike for carpenters, and a 10-cent hourly increase for the other five basic trades—both increases to become effective Dec. 11.

- **A departure**—Administrative provisions of the new contract will run until May 1, 1954. Wage provisions run until May 1, 1952. This long-term master agreement is a departure from the one-year contract in force until this year (ENR Oct. 19, p. 26).

Both labor and the contractors hailed the new master agreement as a return to stability in the southern California construction labor picture.

Included in the master agreement are six basic AFL trade unions: carpenters, engineers, ironworkers, cement finishers, teamsters and laborers, and some 2,350 contractors from 12 counties in southern California who are members of the AGC and Building Contractors Association.

- **Damage suit dropped**—It was indicated that with the signing of the pact, the AGC will withdraw its $15,000,000 damage suit against the carpenters and certain non-AGC contractors, among them members of the Home Builders Institute, which is composed of tract builders.

However, a spokesman for the AGC in Los Angeles said that the association had no control over individual contractors, some of whom have threatened individual damage suits against the carpenters for jobs shut-down during the work stoppage.

Signature to the master agreement saved 22 carpenters' business agents from standing trial for contempt of a court's temporary injunction order issued during the early stages of the shut-down. The agents were to have appeared in court at 10 a.m. on the day the master agreement was signed. With the contract apparently accepted by the unions, the AGC declined to press charges further, with the result that the business agents escaped sentencing.

Europe's largest refinery takes shape

At Fawley, Southampton, work is in progress on the largest refinery project in Europe. When it is completed, possibly next year, it will contribute approximately 25% of British refining output.

The additional capacity provided will make it possible to refine a substantial part of the country's requirements of petroleum products, thus reducing imports.

Total volume of products will be about 5,500,000 tons a year, as against the 900,000-ton output.

The cost of the project will be approximately 37,500,000 pounds. No E. C. A. dollars are involved. Fawley is a private enterprise and has the complete backing of the government as a dollar-saving project.

Permanent employment at Fawley eventually will be about 2,500 as compared with 900 at present, and the number of workers engaged on construction will vary from 2,600 in the first year, to 4,000 in the second.

Union ignores order, pickets Brown & Root

Picketing of Brown & Root Construction Co. offices and jobs in Texas has been resumed in spite of a temporary restraining order.

The Building Trades Council AFL apparently is acting to get itself cited for contempt of court, sources say. Such a citation would force the long-drawnout proceedings from a master in chancery back to the district court.

The union insists that the master in chancery has no jurisdiction over its case, and that trial should have taken place in the court.

The initial restraining order was issued by District Judge Charles O. Betts of Austin last October. What the union fights is a 10-day extension to the order, subsequently issued by the master in chancery.

The union points out that under the law a hearing on a temporary injunction must be held within 10 days from the date of the restraining order. On these grounds it charges 10-day extensions to be illegal (ENR Oct. 26, p. 24; Dec. 7, p. 27).

◆

Highway commission wins court action

Texas Supreme Court upholds wage powers of state highway commission; unions force test of "prevailing wages"

Texas Highway Commission has won a state Supreme Court victory making final its powers to set "prevailing wages" on construction.

Suit testing its powers was brought by the El Paso Building and Construction Trades Council in a state-wide test of the finality of wage-scale determinations by public agencies that are responsible for construction work.

Meade F. Griffin, associate justice of the Supreme Court, wrote the decision which said that the highway commission's authority to determine general prevailing wages is final, not subject to review by the courts.

The decision upholds the opinion of District Judge J. Harris Gardner of Austin. It overruled the Austin Court of Civil Appeals' decision that labor groups are entitled to take wage questions to court.

Briefs supporting the state's contention were filed by the Texas Good Roads Association, the City of El Paso, regional Chambers of Commerce, and past chairmen of the highway commission.

The El Paso Building and Construction Trades Council claimed that highway construction's "prevailing" scale in that city ranges from ten cents to nearly a dollar an hour below actual wages for other types of construction.

The highway department's minimum scale ranges from 75 cents an hour for common labor to $1.65 for skilled jobs in El Paso county.

◆

Canada acts to prevent frivolous construction

Beginning Jan. 1, Canada will ban the use of new steel for building amusement centers and for other non-essential construction. The restrictive order will apply on all steel produced by the Canadian steel industry.

Steel from dismantled buildings and other substitutes will be allowed builders of non-essential construction.

The action of the Canadian government follows along lines similar to those laid down in the United States. (ENR Oct. 26, p. 23).

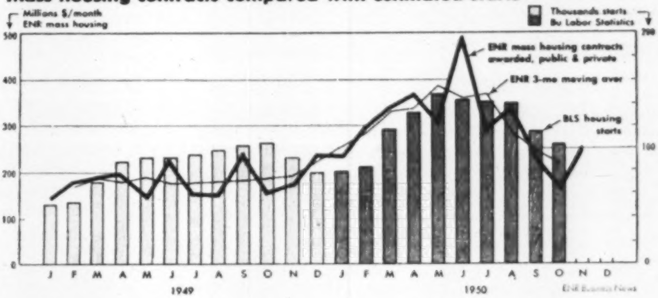
◆

To build national center for pollution research

Grove, Shepherd, Wilson & Kruge, Inc., of New York, submitted the low bid for construction of a new national center for water pollution research in Cincinnati, Ohio, opened Nov. 1 by the Public Buildings Service. Their bid was $3,862,750.

CONSTRUCTION BUSINESS

Mass housing contracts compared with estimated starts



Housing bowed but not bent

The damper put on new housing by government credit controls has slowed but not stopped the awarding of housing contracts. Contracts reported by Engineering News-Record in fact bounced back up in November from their October low of the year. The chart shows the monthly volume of contracts awarded on both private and public mass housing, compared with the housing starts estimated by the Bureau of Labor Statistics.

Reduced to weekly averages, the private mass housing contract average for the first nine months was $68 million a week. In October new private awards averaged $35 million, in November, $40 million and for the first week of December $36 million.

Public housing contracts averaged $5.9 million a week for the first nine months, $7.3 million in October, $10.8 million in November and $4.4 million for the first week of December.

Cement stocks at low

Cement stocks at the end of October were down to 5,958 thousand bbl, second only to the depletion of stocks in October 1947 when they were down to 5,668 thousand bbl. They are 30% below last year's reserve as reported by the Bureau of Mines.

Production of finished cement in October was considerably greater than 19 million bbl, 18% higher than the year before, but shipments exceeded 24 million bbl, 14% more than in 1949.

For the ten months, production has been only 186.7 million bbl, a 7% increase over 1949. But shipments have topped 195.5 million bbl, a 10% increase.

Shipments have increased in all producing districts except Illinois, which lags 2% behind last year for the ten months.

Stocks are higher than they were in October a year ago in only four districts, Michigan, Iowa, Virginia-Georgia-Florida-Louisiana-South Carolina, Puerto Rico. They are 53% lower in Oregon and Washington, 50% less in Eastern Pennsylvania and Maryland, 47% lower in Ohio, 45% lower in California, Kansas, Western Pennsylvania.

Shortages disappearing

Almost all commonly used materials for building are now available for reasonably prompt delivery in retail yards, and inventories are accumulating steadily. This statement by the National Retail Lumber Dealers Assn is based on a telegraphic survey of retail materials dealers just completed. Short waits of two or three weeks are reported in some localities for gypsum board and lath and some other materials, but prolonged delays suffered in recent weeks have been eliminated.

The improvement is attributed to the drop in new housing starts, to better availability of freight cars, and to the return to more normal buying practices.

◆

Wages up 1.6% since July

The minimum wage rates of union workers in construction trades rose 1.6% between July 3 and Oct. 2, 1950, according to the Bureau of Labor Statistics. This compares with a 2.5% rise reported in the second quarter, 1950.

The largest gains were received by plumbers who average 5.8 cents per hour, or 2.3%. Electricians were close behind with an average increase of 5.4 cents or 2.1%. The smallest gains of the 7 trades surveyed were reported by bricklayers whose rates went up only 1.1%.

Most of the increases were for 12½ or 15 cents an hour, but 1 out of every 8 was 25 cents.

◆

Lumber production record

Production of lumber in the third quarter of 1950 set a new record of 11,005 million bf according to the 78th quarterly report of the Lumber Survey Committee to the Secretary of Commerce. And, in spite of the worst freight car shortage in many years, shipments were also the highest on record, 10,661 million bf.

Exports of lumber in the third quarter totalled 114.3 million bf and imports 1,050.4 million bf. During the first nine months imports exceeded exports by 2,187.9 million bf.

$485-million week for contracts

The highest volume of heavy construction ever to go on record in one week is the $484.9 million reported last week by Engineering News-Record. This tops the previous record of $435 million during the week of May 7, 1942, some of which was later cancelled by the War Production Board.

This week it is the $260-million start on the H-bomb fuel plant at Aiken, S. C., that is behind the record, but $33 million in paving awards for the New Jersey Turnpike help.

The weeks high total has in it $110.1 million for private contracts, $374.8 million for public works of which $265.3 million is federal and $109.5 million is state and municipal work. Public buildings account for $294.2 million, industrial buildings for $51.2 million, well above the average for the year, $52.2 million is for highways (not including bridges) and is a new record. Private mass housing awards continued at their lowered rate for a total of $36.4 million for the week.

This near half-billion week shoots up to $11.4 billion the 49-week total awards for the year to date. This, too, is an all-time record. It is an increase of 46% over the same period of last year. Private construction to date is $6.43 billion, an all-time record, and a gain over 1949 of 75%. Public work at $5 billion is 20% more than in the same time a year ago.

BIDS AND BIDDERS

(Major project news received after Construction Reports, page 72, went to press.)

Power plant—City of Kansas City, Kan. plans a $10,000,000 municipal power plant to increase capacity 120,000 kilowatts, in West Armourdale Industrial District. Burns & McDonnell Engineering Co., Kansas City, Mo., is engineer.

Supersonic Wind Tunnel—General Electric Co., San Francisco, Calif., was low bidder at $5,040,402 for electric drive system for eight-foot supersonic wind tunnel at Moffett Field, Calif., when the National Advisory Committee for Aeronautics, Ames Aeronautical Laboratory, Moffett Field, opened bids Dec. 6.

Auto Plant—Ford Motor Co., Detroit, Mich., plans to build a $8,000,000 plant at Natick, Mass.

Granville Street Bridge—City of Vancouver, British Columbia, will take bids Feb. 19, for constructing initial section of Granville Street Bridge. Estimated cost of this section is $5,000,000. Total cost of bridge will be $11,000,000. J. C. Oliver is city engineer.

Housing—Miller Homes, Inc., Detroit, Mich. will construct by own forces a $4,000,000 residential development to be known as Ridgemont Homes Project, in Detroit.

Street improvements—City of Port Arthur, Tex. voted $3,330,000 bonds for street improvements. Charles P. Smith, Orange and George Schaumberg, Beaumont, are engineers.

Factory—Redfern Construction Co., Leaside, Ont. has just been awarded superstructure of factory at Toronto, Ont. for Frigidaire Products of Canada, Ltd., Leaside. Total cost of project is $7,000,000. The same contractor is working on substructure of project. A. G. Facey, Toronto, is architect, and H. H. Angus & Associates Ltd., and R. P. Allsop, Toronto, are consulting engineers.

Housing—Goode Construction, Charlotte, N. C. offered low bid of $3,066,000 for constructing housing project, when the Roanoke Development and Housing Authority, Roanoke, Va. opened bids Dec. 5. Paul Hayes, Roanoke, is architect. No local contractors submitted bids on this project because opposition of City Council has made project uncertain. Council has authorized the preparation of an ordnance calling for referendum on Jan. 2.

Tunnel—Del Balso Construction Co., New York, will construct a $3,988,426 tunnel and connecting ramp approaches on First Ave., near the United Nations Building, for the Boro president of Manhattan.

Hospital—Oakland Hospital, Royal Oak, Mich. is having preliminary plans prepared by Ellerbe & Co., St. Paul, Minn., for a hospital at Royal Oak. Cost will be about $3,500,000. Christopher Parnall, Ann Arbor, Mich., is hospital consultant.

Warehouse and Office—Philip Morris & Co., Ltd., Inc., Louisville, Ky., has postponed opening bids until Dec. 19, for warehouse and office building at Louisville, Ky. Estimated cost is $3,000,000. Lockwood, Greene Engineers, Inc., New York, is engineer.

Power Plant and Transmission Line—Appalachian Electric Power Co., Roanoke, Va. plans high voltage transformer station, near Cloverdale, Va., at about $1,000,000. During the next two years the company plans to expand $4,000,000 to bring power into the Roanoke area.

Ocean Port—Department of the Navy, Mexican Government will construct an ocean port at Matamoros, Mexico, opposite Brownsville, Tex., to cost $3,500,000.

Roads and Bridges—Pennsylvania Highway & Bridge Authority, Harrisburg, opened bids Dec. 8, on divided highway, including viaduct in Allegheny County. Dinardo, Inc., Pittsburgh, Pa., submitted low bid at $2,761,657. On the same date the Pennsylvania State Highway Department, opened bids for constructing, poving, and bridges on road in Westmoreland and Indiana Counties. Low bidder was Latrobe Road Construction, Inc., Latrobe, Pa. at $2,801,332.

Housing—Practical Home Builders, Inc., Detroit, Mich. will construct a residential development, in Detroit to cost $3,000,000.

Plant—Daniel Construction Co., Greenville, S. C. will build a $2,500,000 manufacturing plant at Honea Path, N. C., for Westover Mills, Honea Path, N. C.

Apartment—Alfred B. Perlman, Chicago, awarded a contract for 18-story apartment in Chicago to Crane Construction Co., Chicago, $2,100,000. Shaw, Metz & Dolio, Chicago, architects.

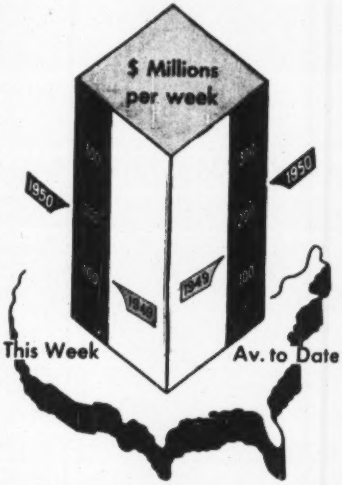
COSTS AND VOLUME

ENR INDEX NUMBERS

Index Base = 100	1913	1926	1949
Constr. Cost. Dec.'50	528.73	254.16	110.84
Bldg. Cost . . Dec.'50	390.14	210.89	110.90
Volume . . . . . Nov.'50	410	167	118

Activity This Week

As reported to ENR
(in millions of dollars)



Amount of contracts let

	Week of Dec. 14, '50	Cumulative 50 wks 1950	1949	% chge
Federal	$60.3	$1,384.4	$1,156.0	+20
State & Mun.	52.6	3,654.4	3,027.9	+21
Total Public	$58.9	$5,038.8	$4,183.9	+20
Total Private	77.6	6,509.6	3,751.2	+74
U. S. Total. .	**$136.5**	**11,548.4**	**7,935.0**	**+46**

Contracts by type of work

	This Week	Cumulative 50 wks 1950	1949	% chge
Waterworks . .	$2.0	$210.1	$204.1	+ 3
Sewerage	5.6	282.3	270.5	+ 4
Bridges	3.8	357.9	347.1	+ 3
Highways . . .	14.9	1,233.0	874.0	+4.2
Earthwork, Waterways. .	2.7	411.5	516.3	−20
Buildings:				
Public	18.8	1,865.2	1,317.8	+41
Housg., pub.	10.1	326.2	360.7	−10
Housg., priv.	30.8	3,052.0	1,776.0	+72
Commercial .	6.7	946.7	553.3	+71
Industrial . .	35.6	1,620.3	932.8	+74
Unclassified . .	5.5	1,243.1	782.5	+59

NOTE: Minimum size projects included are Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

Not available

California to seek bond road financing

Money sought to speed building of highways, which are falling behind needs due to large traffic increases

New money to accelerate construction on California's highway system may come from sale of revenue bonds. Legislation proposing such financing will be introduced at the 1951 session of the state legislature, convening in January.

This was disclosed when an ENR representative interviewed State Senator Randolph Collier, chairman of the senate interim committee on highways, streets and bridges. The interview followed a state Chamber of Commerce meeting Nov. 30 at which speeches by California highway leaders all but said that new funds for highway construction—now seriously lagging behing the state's needs—will have to come from general-obligation bonds.

Here is how the day-long panel of highway speeches led up to this interview:

State Highway Engineer George T. McCoy reviewed the accomplishments of the highway program under increased taxes voted in 1947. He indicated that, particularly from a maintenance standpoint, he and his staff have been fighting a losing battle.

• **Taxes not keeping pace**–Director of Public Works Charles H. Purcell covered much the same ground with emphasis on the administrative and financial aspects. He pointed to inflation of construction prices—particularly since the start of the Korean war—as one reason tax money is not keeping pace with highway needs. Then Purcell reviewed three possible methods of financing an accelerated highway program, one designed to help catch up with critical deficiencies. These methods are (1) toll roads, (2) a temporary tax increase and (3) a bond issue for free highways. His talk seemed to favor the latter.

• **Toll roads impractical**—Another speaker, Harmer E. Davis, director of the University of California Institute of Transportation and traffic Engineering, pointed out that freeway deficiencies in California are primarily in urban areas where toll roads are impractical. Pressure for toll roads has risen in the East where the problem is one of getting from city to city, not one of getting into and out of sprawling metropolitan centers. Prof. Davis said that about half of the expressways built in the U. S. have been built in California. He didn't close the door on consideration of toll roads, but he did indicate that judiciously controlled bond financing might be the answer.

FIELD OFFICE ON WHEELS—F. H. McGraw & Co., engineers and constructors, use house trailers for on-the-job headquarters. Office equipment and cabinets replace household furnishings; heating system, shower and toilet facilities are retained. McGraw's experience with the flexibility of trailer offices for more than a year shows great savings. A trailer, which costs under $2,600 without household items, is said to pay for itself on the second job—when compared with going costs of conventional field offices.

Maker sees great future for diesel-electric drive

Diesel-electric drive eventually will replace conventional transmission systems in all types of highway vehicles.

R. G. (Bob) Le Tourneau stuck his neck out recently, as he himself said, in making that prediction to 320 men at the forty-fifth annual dinner of the Washington Society of Engineers, in Washington, D. C.

What Le Tourneau was talking about, of course, is the simplified, highly efficient diesel-electric drive that he and his engineers have put into the powerful new rubber-tired four-wheel Tournatow tractor (see New Products pages of this issue and ENR, Nov. 30, p. 23).

Those who really know told Le Tourneau a couple of years ago that the kind of drive he is now using could not be designed or made to work.

As now used, the electric drive is confined to a single vehicle—the powerful off-the-highway tractor. But Le Tourneau envisions early development of coupled vehicles running in trains of any desired length—on or off the pavement. At the front end of the train would be the power unit; behind it would stretch attached vehicles, all equipped with motor-driven wheels drawing power from the central source up front.

State responsibility for city streets seen

State construction and maintenance of municipal roads urged by Municipal Roads Commission; asks law be written

A seven-man State Municipal Roads Commission created by the 1949 session of the North Carolina Legislature to study a just method of sharing state highway revenue with municipalities has filed a 14-page report with Governor Kerr Scott recommending that the State take over the construction and maintenance of city streets.

The commission's report, which will be submitted to the 1951 Legislature convening in January, recommends that the Legislature declare a policy that "provision for the movement of traffic, both in rural and urban areas, is the responsibility of the state, and the state should construct, reconstruct, and maintain streets in cities, just as it does roads in rural areas."

• **More money needed**—At the same time, the commission added that it realizes that increased funds will be necessary if 7,000 miles of city streets are added to the state's 62,000-mile rural road system, but stated that it "believes North Carolina is able to carry out a program of equal treatment of roads and streets," and suggested additional possible revenue sources.

North Carolina now allocates a portion of its highway funds to cities and towns for maintenance of streets, but the cities have contended that the money thus received is inadequate.

Governor Scott in commenting on the situation recently suggested that the State might take over the city streets by adding one cent to the gasoline tax but officials of the North Carolina League of Municipalities have frowned on the gas tax increase proposal and have stated that they wanted control of the funds retained in those cities which have adequate street departments.

◆

New ASCE division formed for engineering mechanics

Organization of a new engineering mechanics division of the American Society of Civil Engineers has been announced with the appointment of an executive committee to direct it.

Becoming the fourteenth of the society's technical divisions, objective of the new specialty group is to foster "activity and development in applied mechanics and other basic branches of knowledge, which form the background and foundation of the civil engineering profession."

FINAL INSTRUCTIONS—Indian engineers, after a 10-month training course in the U. S., receive a final briefing from H. H. Levonian, chief engineer, the Kuljian Corp., Philadelphia, which is designing and building a $35,000,000 steam power plant of 240,000-kw capacity in India for them to operate. Known as the Bokaro Plant, it is part of the large Damodar Valley project, west of Calcutta. Involved also are eight dams and hydroelectric stations for which the Harza Engineering Co., Chicago, is consultant.

Chesapeake bridge storm damage

Chesapeake Bay Bridge work, as well as floating equipment for the job, were damaged in the Nov. 25 hurricane.

A bent under construction by Booth & Flynn of Pittsburgh was toppled. What happened to the bent is not known, but it is thought that a ferry awash in the storm may have sideswiped the bent.

Four of the western-shore approach bents also were damaged in varying degree by buffeting from floating equipment.

- **Equipment hurt**—Of the some 100 pieces of floating equipment, a barge with 400 tons of steel is missing. The steel was for work on a pier cofferdam and represented one-third of the steel needed for that structure. Two scows ran aground, and several others sheared their bits. This damage was sustained by Frederick Snare, Inc., of New York.

Special magnetic equipment is being used in an air search for the missing steel.

Recovered and put in use were a partially-loaded deck barge and a water and fuel barge which ran ashore during the blow. Slight damage to one of the steel forms of a pier also was noted. The pier and the two barges were on work of Merritt-Chapman & Scott of New York.

- **Ten-ton anchor dragged**—So great was the force of the storm that floating equipment dragged a ten-ton concrete anchor more than a mile up Chesapeake Bay to a point dangerously near two bridge piers.

Stretches of the eastern-shore causeway's protective stone wall were washed out, and earth embankments seriously eroded.

J. E. Greiner Co., consulting engineers of Baltimore, are surveying damage done.

◆

Mack retires after long service in Delaware

W. W. Mack, director of the River Crossings Division, and former chief engineer of the Highway Department, of the State of Delaware, retired Dec. 13 at the age of 70 after 33 years of association with the state's highway operations.

Alaska's permafrost gets expert attention

Alaskan Science Conference hears of borings finding permafrost 1,000 ft down; a sewage and waste problem

Careful attention to permafrost and its relation to the physical development of Alaska was centered in the Alaskan Science Conference held in Washington, D. C. during the month of November.

First results from earth-temperature measurements now being made in oil-drill holes near Point Barrow were announced. A by-product from work in the Naval Petroleum Reserve Area No. 4, the studies reveal depths of perennially frozen ground extending more than 1,000 ft.

Resolutions were passed calling for research committees to assist in the development of appropriate information centers in Alaska and in Washington by the National Academy of Science.

Other papers discussing permafrost were read at the general session. Problems in water supply and sewage and waste disposal together with measures adopted to meet them were described by Mr. Alter and E. K. Day. Mr. Alter of the U. S. Public Health Service discussed permafrost's effect on sanitation, stressing the relative prevalence of filth-borne diseases in Alaska because of the difficulties of waste disposal in frozen grounds.

The Alaskan Science Conference is believed to be the first gathering concerned with all aspects of research in Alaska. It was sponsored by the National Academy of Science and the National Research Council.

More jobs for engineering graduates

Mobilization and normal demand for engineers has completely absorbed the 1950 graduating classes of engineering schools, and employers are now seeking additional personnel.

The Bureau of Labor Statistics reports job opportunities greatly improved with hiring of engineers greater than in 1949.

As defense production rises over the coming months, the BLS foresees an even larger demand for engineers.

High school students and others considering whether to enter upon engineering training might take a look at the Bureau's Occupational Outlook Summary of March 8, 1950, BLS points out. This summary was based on the assumption of peacetime conditions. It indicated that the engineering profession has been one of the nation's fast-growing occupations. The outlook then, according to BLS, was for a long run continuation of this trend.

Now defense mobilization over the next several years will emphasize this trend of the profession, BLS says. At the same time the number of freshmen engineering students has been declining since 1946 with the drop in veteran enrollment in U. S. colleges.

Against the rising demand for engineers, BLS foresees a drop in the number of engineering graduates coming out of the nation's schools.

According to the estimates of the US Office of Education and the American Society for Engineering Education, the number of engineers graduating in 1954 will be down to 17,000 from the 1950 level of 50,000. This is less than the number of new graduates normally needed each year.

IT GOES IN HERE—Into this 240-ft gap the cableway skip dumps rock and 12-ton tetrahedrons to start turning the flow.

IT BUILDS UP in the gap (which was 60 ft deep) until the tetrahedrons show above water, assuring that the fill will hold.

McNary Dam diversion's toughest part

Success of the toughest river diversion in construction history was assured on Nov 16 at McNary Dam on the Columbia River. At 8 am on that date, the 12-ton precast concrete tetrahedrons broke the water's surface. This gave engineers and contractors assurance that the rock and concrete back fill would hold in the 240-ft wide and 60-ft deep cofferdam gap.

Only two phases of the work differed from original plans (outlined in detail in ENR, June 29, p 29). First, the tetrahedrons were made 12 tons instead of 8 tons. Secondly, the river flow reached a peak of 152,000 cfs during diversion instead of the hoped-for top flow of 126,000 cfs. Flow when diversion started was 100,000 cfs.

The contractor, McNary Dam Contractors, figured if an 8-ton tetrahedron was good, a 12-ton tetrahedron would be better. So the cableway system was designed accordingly. The Corps of Engineers had selected the tetrahedron as being the most stable form of heavy precast concrete. Rock alone would not have held.

In view of the greater-than-hoped-for flow, it's good that the larger size was used. Tests indicated that for a 100,000 cfs flow water velocity would exceed 35 fps if the fill of 8-ton "tets" stayed at a 1 on 2 slope. Under these conditions the engineers were relatively sure the fill would hold.

The fill was actually made of a combination of 2,087 "tets" and 27,000 tons of "B" rock (1 ton minimum weight). The rock was used wherever flow was slow enough for there to be a chance of it holding.

Actually, the plug for the cofferdam is far from being finished. Next, a blanket of "C" rock (ungraded) will be placed on the upstream face. This will be covered with an impervious layer that will be faced with heavier rock for protection. Finally the fill will be topped with a rock-filled timber crib.

A cableway with movable head and tail towers served to fill the cofferdam gap. The 3-in thick cable supported a skip that could carry one tetrahedron or an equivalent weight of rock. With this set-up and with more than 3,000 tets precast and cured, a little less than 6 weeks was required to bring the fill to water surface.

McNary Dam Contractors is a joint venture of Guy F. Alkinson Co, J. A. Jones Construction Co, and Ostrander Const. Co. R. J. Jenks is project mgr.

McNary Dam is a project of the Walla Walla District, Corps of Engineers, Col Wm. H. Mills, district engineer.

Canada impatient for seaway project

Canada's Transport Minister Chevrier, in a nation-wide broadcast, has restated his belief that consideration must be given to an all-Canadian route for the St. Lawrence Seaway if the branches of the United States Congress continue to cold-shoulder the long talked-of project.

Mr. Chevrier recalled that Canada and the United States had signed in 1941 an agreement for joint development of the scheme, and added: "If it is impossible to obtain the joint development referred to in the 1941 agreement, then consideration must be given, as indeed it already has been, to an all-Canadian route."

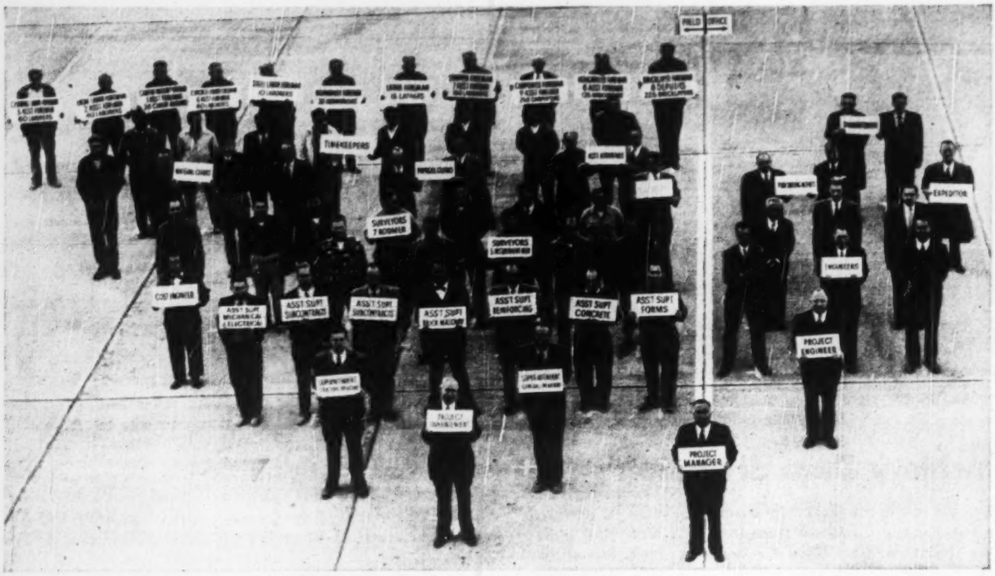
He went on to point out the advantages to Canada of completion of the seaway, in particular the facility which it would provide for bringing iron ore from the great new Labrador fields to the Great Lakes, for Canadian and American use. He discussed the power that could be developed from the seaway and pointed out that Ontario's serious power shortage was being made more acute by the demands of increasing defense production. Even power resources in the Montreal area were satisfactory for "but a few years," the transport minister said.

• **More men needed**—Further indication of Canada's growing impatience at American delay in enabling the joint project to be undertaken is the announcement of the Civil Service of Canada to the effect that highly skilled civil engineers are required for the new Special Projects Branch of the Department of Transport of the federal government.

While nominally a new division of the department, the Special Projects Branch is in effect a unification of the engineering and design branches of the department to facilitate increased engineering work on the St. Lawrence project.

It is the Department of Transport which will be responsible for Canada's part in the joint seaway project when it goes ahead.

(Under the Boundary Waters Treaty of 1909, Canada could not undertake the work in the international section of the St. Lawrence River that appears to be required for a modern ship canal on the Canadian side without approval of the International Joint Commission. Similarly, the power could not be developed without such approval. Editors.)



The timetable called for teamwork—and this was Turner's team on the . . . . . .

Close organization pays off on tough building schedule

D. C. Andrews
Turner Construction Co.
New York, N. Y.

SPEED was the contractor's prime objective as he set out last Jan. 10 to enclose and make ready for use New York City's big, block-square Port Authority Bus Terminal. Organization was his answer.

With foundations and structural steel substantially completed under earlier prime contracts, Turner Construction Co. was awarded the work of completing structural features and finishing public concourses and bus areas by Nov. 1. This was done. Terminal tenant areas had later completion dates, depending on the requirements of each tenant. Total bid price was $9,195,000.

(For full details of the $24,000,000 structure see ENR, Dec. 1, 1949, p 23. Later ENR stories covered the foundation wall construction on Feb. 2, p 44 and the tunnel-to-terminal traffic ramps on Nov. 16, p 11.)

Organization was influenced by this reasoning: Best assurance of scheduled completion was through performance of all structural work with Turner's own forces. Finish work, which depended on completion of structural work, could be subcontracted to specialists.

About 64% of the 172,000 man-hours that went into the job were performed by Turner forces—a high percentage for a New York building of this type. (In dollars, the subcontracted finish work accounted for 64% of total contract price, since it required more costly materials and equipment.)

• Organization of forces—The writer was assigned executive charge of the contract as project manager in the New York office, with Earl R. Andrew as project engineer in the office, and Walter F. Conlin as project superintendent in the field.

Scheduling, requisitions, purchasing and subcontracting required the services of six office engineers, two purchasing agents, two draftsmen, and one expediter under the project engineer in the contractor's main office.

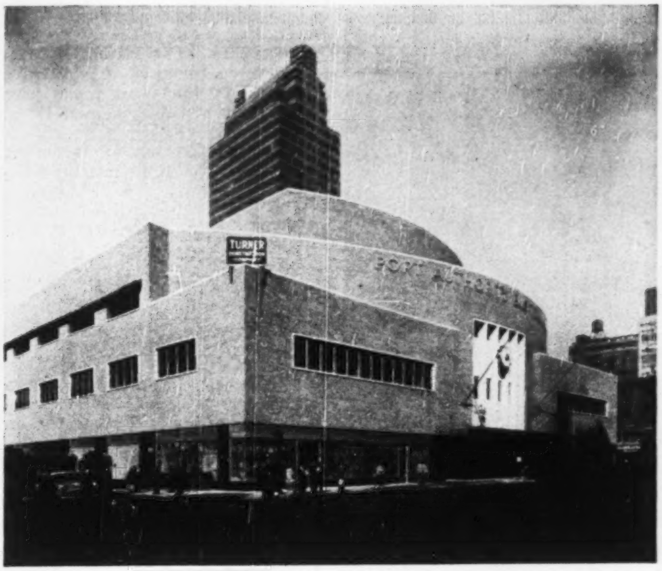
In the field, project superintendent Conlin assigned M. J. McMahon to the general supervision of the structural work of forms, reinforcing and concrete; and L. W. Hall to the general supervision of brick masonry, subcontracted work, and all other items of general contractor's work.

Six assistant superintendents were put in charge of the specific operations of forms, reinforcing, concrete placing and finishing, brick masonry, mechanical and electrical subcontracts, and finishing trade subcontracts. The last-named operation became extensive enough to require the services of a seventh assistant superintendent in the later stages of the work.

The above organization-chart photo of the entire Turner organization assigned to this contract includes the 64 men charged with the supervision and direction of the work in field and office.

• Emphasis on experience—Turner Construction Co. has always emphasized the necessity of organizing field work with permanent, company-trained supervisors, thoroughly familiar with all departments of the company and capable of close cooperation as a team. The top three men in the bus terminal field organization were, therefore, experienced superintendents averaging 15 years of company service each.

Of the ten superintendents and assistant superintendents in the photo, six were permanent staff members with an average of over ten years of company service. The 11 general foremen all were permanent personnel averaging over 15 years with the com-



. . . new Port Authority Bus Terminal in New York City

pany. The 12 men in the office group averaged more than 10 years of service each.

• Schedules kept adjustable—Every operation (including those of the subcontractors) was scheduled for each of four sections of the building and each of five levels. Schedules were reduced to man-days of work to be performed, and the practical size of gang required to do each operation in the required time was determined.

Original schedules were expanded as required to accommodate field conditions with regard to weather and availability of men in each trade. Scheduling was considered a continuing part of the basic planning of the work, and schedules were frequently revised to take up slack where possible—or extend time where absolutely necessary.

In general, actual progress of the structural concrete floors was kept right on the original schedule; the enclosing walls and interior masonry fell behind due to a lack of sufficient available bricklayers; and the finish trade subcontract work exceeded the schedule by necessity, so as to complete as specified.

At the peak, Turner employed 605 workers of eight different trades, and the subcontractors employed 450 workers of 26 different trades—making a total peak employment of 1,055. Due to the very high level of employment in the building trades in New York City at the time, this work force was maintained with difficulty. Without the cooperation of the building trades unions, the general contractor could not have hoped to complete on schedule.

• Contractor operations—Chief structural elements handled by the general contractor's forces were forms, reinforcing steel, concrete and brick masonry. Some 1,220,000 sq ft of contact surface—mostly in structural concrete floor slags—required the making and repeated moving of 212,000 sq ft of forms—1,100,000 fbm of lumber and plywood.

The various sizes of structural steel floorbeams required constant alteration of forms in their repeated uses. Because of the special nature of the structure—two levels required bus loads and two levels pedestrian loads—there was probably considerably more alteration of forms due to changing beam sizes than is ordinarily encountered in buildings of this size.

The force required at the peak for the formwork operation consisted of 420 men (see photo). In addition, two draftsmen were constantly employed in drawing form details.

Some repetition in beam sizes, and the advisability of keeping forms and concrete as close to the erection of structural steel as possible, made it advisable to move forms horizontally from east to west on each level, rather than move vertically—floor to floor.

Each of the four structural levels consisted of 32 bays 25x200 ft. Forms were made up for six bays of the first level, five bays of the second level, and four bays for each of the two upper levels. When the structural steel topped out at the west end, an additional 20,000 sq ft of forms was made up for use at that end and moved vertically from floor to floor to hasten completion.

The lower two levels, being the lightly loaded pedestrian floor, required rolled-out wire mesh reinforcing. The upper two levels, being bus floors of heavy loading, required steel bar reinforcement.

All reinforcement was unloaded and distributed to the various bays on each side street. Bar reinforcement was distributed in each bay on the top level, and that for the level below was passed down from the roof by hand.

A total of 750 tons of bars, 925,000 sq ft of mesh and 123,000 lf of beam clippings were installed by a force of 29 men (see photo).

Total concrete requirements were 40,000 cu yd in these types: 27,400 cu yd of stone aggregate structural concrete; 8,600 cu yd of lightweight aggregate structural concrete; 3,000 cu yd of lightweight aggregate fill concrete; 1,000 cu yd of surface topping.

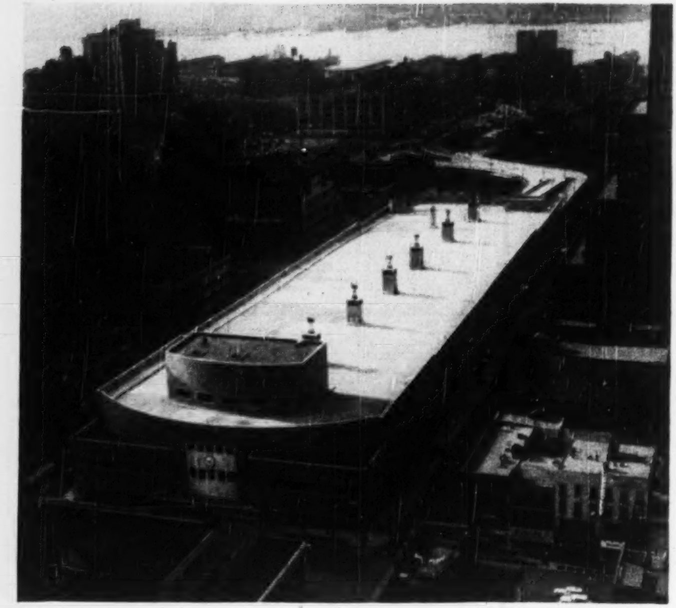
Consideration was given to installation of a mixing plant at the site, but with the variety of aggregates and mixes required—and 500 cu yd of concrete per day—purchased ready-mixed concrete was deemed speedier and more desirable. All concrete was supplied by the Metropolitan Sand and Gravel Corp. and transported to the site in 5½ and 8½-cu yd mixer trucks.

Five concrete hoist towers of 1½-cu yd bucket capacity were set up on the north side of the building about 150 ft apart. These towers raised all concrete for structural slabs, fills and finishes.

Regular 6-cu ft hand-pushed buggies were used for horizontal distribution of the structural concrete. The large quantities of floor fills and finishes placed after the structural slabs had set were handled in heavier 12-cu ft motorized buggies.

Peak production of about 500 cu yd per day poured required a concrete organization of 105 men (see photo). At most times concrete was received and placed in two different locations simultaneously by two gangs. For a short period of time at the peak of concreting operations, three gangs were used at three locations.

• 2,500,000 bricks—Total requirements were 1,415,000 face bricks, 1,115,000 common brick, 250,000



PORT AUTHORITY BUS TERMINAL (official name) opens for business this week, Dec. 15 (official date). Work described in this article was finished on Nov. 1 as required in the contract.

sq ft of partition blocks and 121,000 sq ft of glazed tile.

All masonry materials were received in the lowest level of the building and distributed by six fork-lift trucks. Two large platform hoists were located inside the building about at the third points. These hoists had sufficient capacity to raise the trucks from floor to floor.

Mortar (sand and lime) was received at the 40th Street (south) side curb line and chuted down into a 28-cu yd steel bin in the basement, where a screw conveyor charged a large paddle-type mortar mixer in which the cement was added. The mixer discharged into a 6-cu yd receiving hopper, ready for distribution to bricklayers on all floors.

Mortar was also distributed by the fork-lift trucks and was handled in 15-cu ft steel hoppers with sliding gates. One truck at the lower level filled the hoppers from the mixer hopper, and put them on the platform hoists. Trucks at each floor level took the loaded hoppers off the hoist platforms and transported them to the bricklayers. Lift trucks could get to bricklayers' pans on any scaffold up to 12 ft in height.

Because of parapet walls that varied from 4 to 11 ft in height, it was thought advisable to set outrigger beams for the hanging scaffolds at the roof level. These beams were elevated to clear the top of the highest parapet, and thus no holes were left in the wall to be patched later.

Installation of granite base and piers seriously delayed bricklaying in the early spring months, making it impossible to build up the bricklayer's gang to the required numbers while bricklayers were available. Later, when volume of building work in the city was heavy, it became difficult to obtain sufficient bricklayers.

Delay in installation of the exterior granite was the only serious setback in the entire project, but it continued to the end. Two weeks before the final completion date, granite was still being set at delayed locations where the brickwork had been carried up ahead of it to completion.

As the brick masonry went farther and farther behind schedule because of lack of man-power, considerable ingenuity was exercised to see that priority of masonry items was observed—preference being given to masonry prerequisite to subcontract work. Such direction of the brick masonry was not always economical, but it confirmed the general contractor's opinion that such a tight time schedule necessitated keeping control of the masonry work by performing it with his own forces.

Bricklayers may not work overtime in New York City, according to local union and trade association rules. Whereas in all other trades the working hours were extended as needed, this could not be done with the bricklayers. Except for the timely assistance of officials in the bricklayer's union in building up the gang, it is probable that lack of bricklayers would have made the schedule impossible of achievement.

A 367-man force was required at the peak to accomplish the masonry operation.

• **Subcontracted: 36%**—Over a third of the total man-hours was put in by subcontractors—34 of them.

It required the full time of two purchasing agents for about three months to get all subcontract work going. Checking and submitting subcontractor's shop details to the owner required the constant attention of two office engineers on finishing trades subcontracts, and one office engineer on mechanical and electrical subcontracts.

The subcontract for furnishing and installing thirty-one flights of moving stairs is noteworthy as one of the largest installations of such equipment under a single contract. The amount of shop-assembly work done on each flight was unusual. Each flight was made up in one piece about 55 ft long, minus only the driving head. Units were transported from Coffeeville, Kan., by truck, and lifted into the building by crane; there the drive unit was attached to it. This was an innovation; structural units are usually shipped in small pieces and assembled at the job.

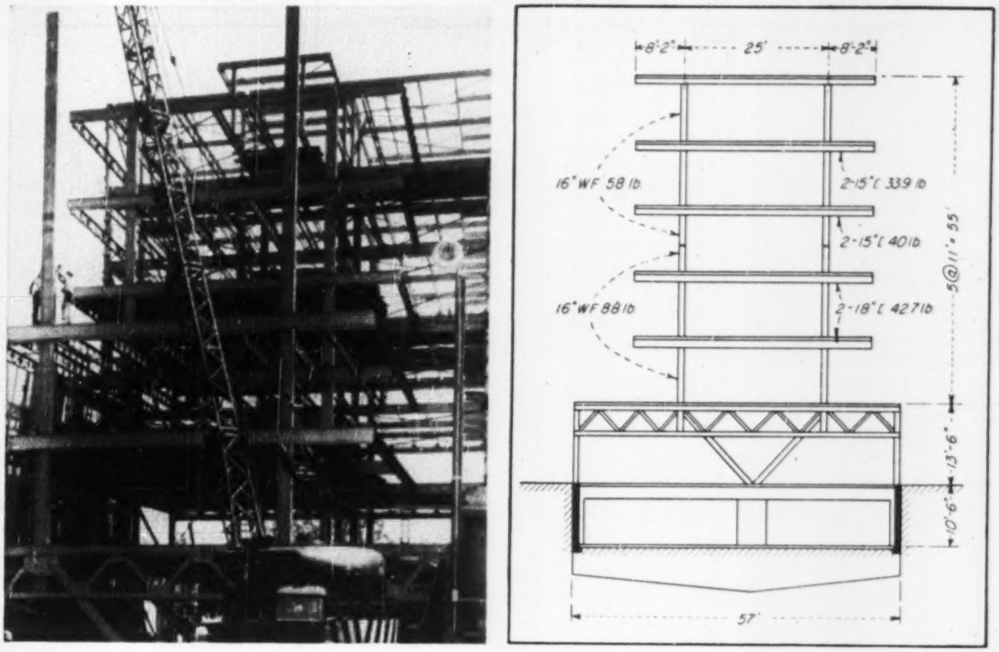
Interior marble wainscoting required 59,000 sq ft of Hauteville marble, and was installed at a rate which at times exceeded 2,000 sq ft per day. The 120,000 sq ft of terrazzo floors frequently required laying and grinding more than 3,000 sq ft per day.

Acoustical ceilings were of the metal pan type and the 127,000 sq ft were installed in 2½ months; the last 60,000 sq ft being installed in 15 working days. Aluminum trim is used liberally throughout the building; there are 30 exterior show windows, and 70 interior show windows with aluminum frames. The 230 doors are also aluminum.

Work now in progress on about 20 stores and shops is expected to be completed by January.

Work on a restaurant, a large drug store, a super-market, and a recreation center containing 31 bowling alleys is to start soon, with completion planned for next March or April.

• **Owner's organization**—All construction was designed, directed and inspected by forces of the Port of New York Authority: John M. Kyle, chief engineer; I. P. Gould, assistant to the chief engineer; Frank Carey, resident engineer.



RIGID FRAMES for the rear wing of Mid-Wilshire Medical Building in Los Angeles are supported on a truss at the second floor. Loads are transferred from the truss to a center pier, which rests on an inverted cantilever footing. Side columns take unbalanced load.

Welded frames cut costs of 6-story building

EXTENSIVE STUDIES made to determine the most economical type of construction for a 6-story office building in Los Angeles led to the adoption of welded steel rigid frames.

The structure is the Mid-Wilshire Medical Building, now under construction. It is one of the first in which advantage is taken of a revision of the building code permitting exterior walls with a two-hour fire rating for this type of construction and this height.

Provision has been made within the building—on the first floor and in the basement—for off-street parking even though the lot is only 57 ft wide. This feature, unusual in a building of this size, made necessary unorthodox framing for supporting upper stories, to obtain a maximum floor area unobstructed by columns.

The front portion of the building occupies the full width of the lot. Walls in this 44-ft long section have no windows. However, the 120-ft long rear wing is 42 ft wide, set back from property lines to permit installation of continuous fenestration.

• Lightweight design—Structural framing to satisfy these requirements was devised by Edgardo Contini, Los Angeles engineer, in consultation with R. L. Baumfeld, associate in charge for Gruen and Krummeck, Victor Gruen, achitect.

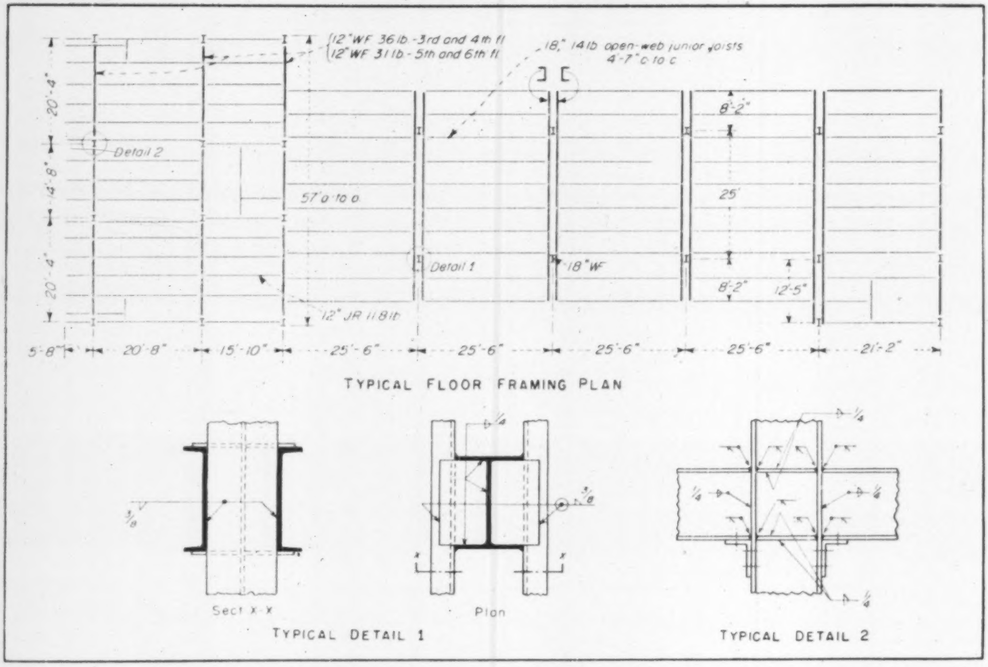
The designers felt that reduction of dead loads achieved by eliminating heavy exterior walls—often the critical design factor for buildings subject to earthquakes—warranted investigation of steel framing. (Ordinarily, reinforced concrete has been chosen in preference to structural steel for buildings of this height on the West Coast.) Mr. Contini found that he could obtain an extremely light and economical structure by developing a lightweight floor construction (metal deck topped with 2-in. lightweight-aggregate concrete and supported on open-web junior joists); by taking full advantage of rigid-frame design; by designing the rear portion of the building with cantilevered girders; and by using welding for all rigid connections and riveting for standard connections.

In spite of fairly large column spacing in the rear wing, average floor framing, including columns, weighs less than 9.5 psf. This, Mr. Contini claims, represents a very considerable saving in tonnage (and, almost proportionally, in cost) over conventional steel framing for a similar building. Total cost of the structure was about $16 per sq ft for the 42,000 sq ft of floor area incorporated.

Mr. Contini also points out other advantages that influenced his choice of structural steel: Speed and ease of erection, flexibility in accommodating mechanical ductwork (which permitted a 4-ft reduction in over-all building height) and adaptability to special framing problems encountered at second-floor level.

The front wing of the building consists of 4-column, 6-story rigid frames, which provide stability against transverse horizontal forces. Longitudinal stiffening is achieved with vertical cross bracing in the side walls.

• Girders cantilevered—Framing for the rear wing consists of open-web junior joists supported on 2-column rigid frames. Horizontal members of the frames are pairs of channels. These cantilever 8 ft 2 in. past columns center lines, eliminating need for columns in the walls. This layout simplifies wall construction and allows flexibility in partitioning of office space. The double channels permit direct run of utility pipes and stacks in line with



MAIN GIRDERS in the rear wing consist of pairs of channels, the webs of which were welded to column flanges (Detail 1). Girders in the front wing also were welded for full continuity (Detail 2). Other connections are riveted.

columns. And cantilever action reduces maximum design moments for main girders.

Rigidity of rear-wing frame connections was developed by field welding channel webs to column flanges. In addition, channel flanges were field welded to stiffener plates, which had been shop welded to column flanges and web (Detail 1).

• **Center piers support steel**—Frames in the rear wing extend from second floor to roof. At the second floor, each frame is carried on a truss, which transfers vertical reactions from both columns through diagonal struts to a pier at the center of the building. Truss supports at property lines balance the structure against unsymmetrical or horizontal loads.

Shop-riveted, the trusses have top chords made of a pair of channels and bottom chords made of a pair of angles. Channels and angles are about 13 in. apart, back to back, to allow the columns and the diagonal struts to pass through. Chords are laced to provide adequate lateral stability.

The great difference between the load on a center pier and that on corresponding side columns created a problem in foundation design. Standard spread footings could not be used because of the possibility of differential settlement, which might overstress basement concrete frames and steel trusses above. Footings, therefore, were designed as inverted cantilever beams, anchored at the ends in the basement walls. And the walls in turn were designed to act as continuous longitudinal beams to distribute differences in reactions.

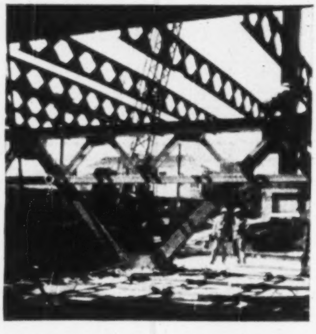
• **Walls precast**—Exterior walls above ground are a thin skin. In the front wing, they consist of 2-in. thick precast-concrete panels with integral crushed-stone facing. At the front elevation, where there are windows, precast spandrels are anchored to 4-in. channels cantilevered vertically from floor joists. Along the sides, forming an unbroken wall, the precast panels are anchored to 4-in. channels that span from floor to floor.

The interior is finished with plaster on metal lath, which is attached to the inside face of the channels, leaving an air space for insulation.

In the rear wing, continuous strip windows extend the full length in each story. Spandrels here are anchored to 3¼-in. standard expanded-steel studs cantilevered from spandrel beams, which are cross-braced for lateral stability. A coat of cement plaster 1 in. thick forms the exterior facing and vermiculite plaster the interior.

In spite of the very close tolerances required by this type of framing, Mr. Contini reports, no unexpected difficulties were encountered during construction. Erection of the entire structural frame was completed in five weeks—ahead of schedule.

Waale-Camplan Co. was the general contractor. Consolidated Western Steel Co. fabricated and erected the structural steel.



OPEN-WEB JOISTS support the floors. At second-floor level, they are supported on the trusses that carry the rigid frames.

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can't harm
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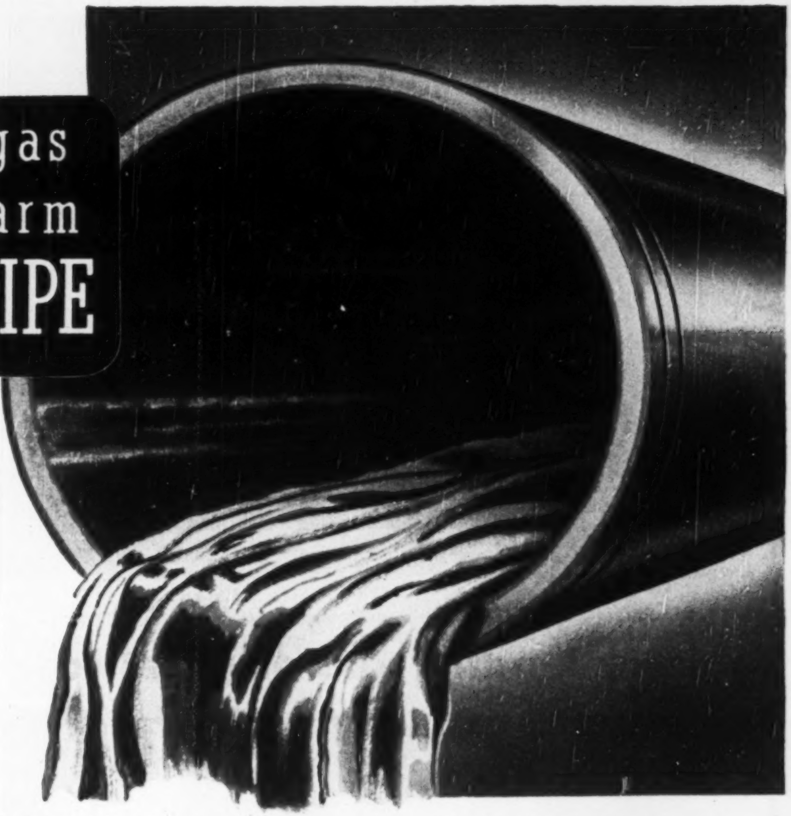

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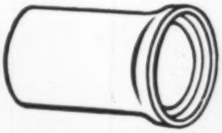

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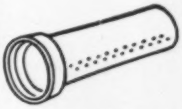
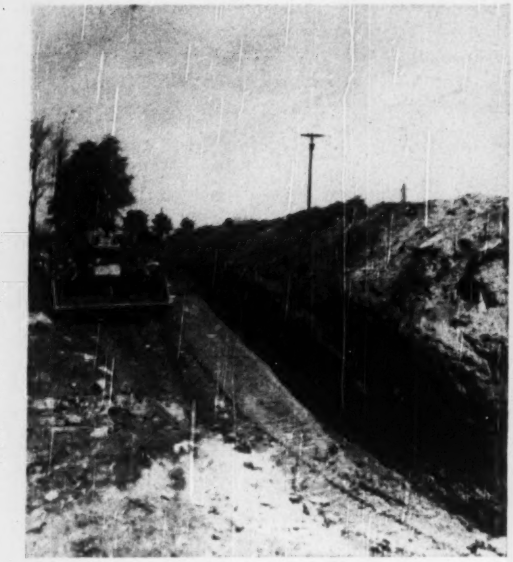


PERFORATED CLAY PIPE

C-150-2



1. A TRENCH ON WASTELAND is cut with a bull clam on a tractor. It's two tractor-widths wide.

2. GARBAGE AND REFUSE dumped into the trench from open-bodied trucks is consolidated and . . .

Sanitary landfill cuts disposal cost: Inadequate-capacity incinerator abandoned

IF YOU'RE AN OFFICIAL of a small city that's plagued with a garbage-disposal problem, you might take a look at what Burlington, N. C. (population 24,500) has done.

After switching over from incinerator-and-open-dump to landfill garbage disposal, Burlington has saved more than $6,360 in 28 months. And by this changeover, former City Manager W. H. Carper says, Burlington stands to profit not only in dollars and cents but also by reclaiming waste marsh land for a municipal park and public recreation area.

Landfill has also solved another municipal problem. Gone are the smoke, smell, flies and rodents that were characteristic part of the old refuse disposal system.

• How it's done—Using a ramp version of the trench-fill method, a tractor operator, using a Bullclam attachment, cuts a 10 to 18-ft trench below the original ground surface. The trench is about two tractor-widths wide, which makes for economy and ease of excavation.

A pass—first on one side, then on the other—makes it possible to excavate the trench evenly and without extra maneuver. The excavated dirt is banked into a gently sloping ramp at one end of the trench.

Garbage and refuse is then dumped into the hole, to be pushed together, tightly compacted and leveled with the tractor and clam. This is done by running the crawler tractor back and forth over deposited material. The tractor's weight—transmitted through the treads—compacts the refuse effectively.

Two feet of earth cover is then placed over the compacted refuse. Material is scooped up from the pile at the end of the ramp and deposited with the clam.

A maximum of 150 loads of garbage—about 1.5 tons per load—can be disposed of daily in the sanitary landfill with one tractor.

• Tight cover—Red Carolina clay, Carper says, is used for cover. It makes a tight seal and prevents surface fires that can occur when accumulated gases in the refuse escape through porous cover.

Present landfill operations are aimed to build up a marshy site. The road-bed is being raised ten feet above the original surface while the area for a baseball diamond is about 18 ft above it.

Sanitation Superintendent Z. V. Rogers says that the reclaimed land will be ready for use as soon as it's filled in. He reports that the shrinkage of the fill is less than one percent of the original compacted volume.

• Incinerator outgrown—Built in 1938 for $43,000, the Burlington incinerator could not handle the refuse delivered to it ten years later. In that period the city's population doubled—and created just that much more refuse.

All tin cans and non-combustible materials had to be separated from collected refuse before burning. And, due to insufficient combustion, much garbage had to be put into the open dump. The separation was slow and costly and the open dump was unsanitary.

After a thorough investigation, Carper recommended that the City Council purchase a Bullclam shovel and start landfill disposal. The Council agreed and authorized the shovel for installation on a sanitation department tractor. And controlled landfill was started.

After three months of operation, the

3. **PACKED DOWN** by the tractor crawling back and forth. The treads plus vibration compact effectively.

4. **EARTH** is picked up and spread back over the compacted garbage and refuse with the bull clam.

landfill proved to be a highly effective method of refuse and garbage disposal. The incinerator and open dump were shut down permanently.

• **No mess now**—Today, six open-body dump trucks are utilized by the sanitation department for collection of all types of garbage. Daily collections are made in business and school districts and three collections per week in the residential sections of the city.

At the landfill site, only large tree cuttings and a small amount of cardboard and metal is removel or salvaged from the garbage. And that is done after the trucks have dumped into the excavation.

• **Less labor, lower cost**—Five full-time workers were needed to man the incinerator. Its two small furnaces were operated about 14 hr a day.

Landfill disposal, on the other hand, required only two men to operate the tractor and bull-clam shovel.

Cost of incineration for the 28 months preceding its shutdown was $23,955. This included the salaries of a supervisor, four helpers and one outside dump keeper.

Cost of landfill through Aug. 1950 was $17,593. This includes salaries of two tractor men plus the tractor-operating expense.

The saving: $6,360 or $227 per month.

The bullclam utilized for the landfill operation is manufactured by the Drott Manufacturing Co., Milwaukee, Wisc. It's mounted on an International Harvester Co. TD-14 tractor.

5. **ALL TYPES OF REFUSE** are picked up in open-body dump trucks. Spillage is prevented by canvas covers. Collections are made daily in business and school districts; and three times a week in residential areas.

6. **NO LONGER IN USE.** The incinerator has insufficient capacity to meet the needs of an expanding city.

CLOSE QUARTERS—A narrow street and poor rock make it tough going on the W 179 Street Tunnel approach to the George Washington Bridge.

Bridge-approach tunnel dug doorstep-to-doorstep

Richard J. O'Sullivan
Field Engineer
Poirier and McLane Corp.
New York, N. Y.

EXCAVATION crowds the building lines as the new Manhattan tunnel-approach to the George Washington Bridge is cut and-covered through narrow West 179th St.

Putting the 22-ft roadway 36 ft below street level is complicated by (1) The confined work space—60 ft between building lines, (2) the required underpinning of poorly founded five-story apartment-house walls and (3) the usual urban underground utility tangle.

The 2,200-ft tunnel will provide a westbound highway connection between the Harlem River Speedway or the future Cross-Bronx Expressway on the east and the George Washington Bridge on the west. It will relieve congestion in a sister tunnel in operation one block south (ENR Apr. 13, 1939, Vol. p. 503).

Apartment houses line West 179th St. Therefore, decking operations had to follow the excavation closely to provide access for fire apparatus or other emergency vehicles and for routine services required by residents along the way. The width of the excavation meant decking right up to building areaways on most of the job.

• Underpinning buildings—Before the main excavation could proceed it was necessary to underpin most of the buildings fronting thereon. With the exception of a post office structure, all buildings underpinned were found to be on rubble wall foundations, and in many cases poor condition of the walls made underpinning difficult.

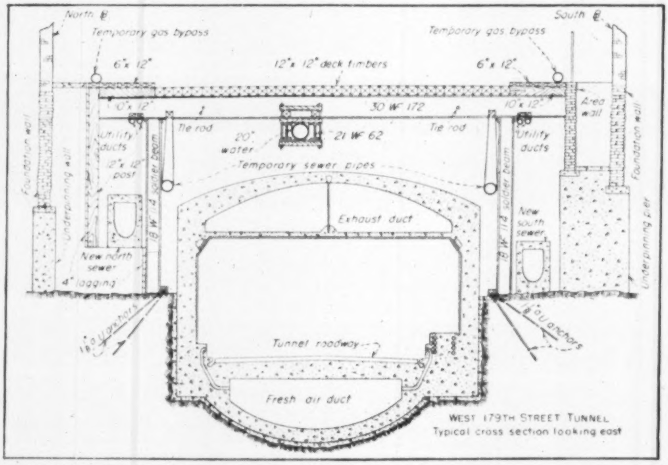
Near Amsterdam Ave., a wet, silty sand was encountered; because of the difficulty of excavating and pouring concrete underpinning piers to a suitable depth, a substitution of concrete-filled pipe piles, test-loaded for capacity, was made. These were jacked to rock, filled and capped with concrete, and a pier was set on top to transfer the foundation loads to them. Because of a wet condition west of St. Nicholas Ave., solid underpinning walls were required to prevent undermining of interior walls and basement floors by soil washing between piers.

At Ft. Washington Ave. the tunnel skirts the northwest corner of a five-story apartment building that had its foundation wall on seamy rock extending back under the building. The rock apparently had been loosened during construction of the existing portal and bridge approaches immediately west of the building.

Before excavation could be continued, the building corner was tied back at each of the floors above street grade. The rubble foundation wall and poor rock beneath was then removed in sections and replaced by 5-ft wide concrete piers to good rock.

• Handling utilities—Principal utilities presented no more problem than usual. Street gas mains were replaced by temporary 6 and 12-in. mains set on the surface on both sides of the street and connected to underground mains at the crossing avenues. Where these gas mains in the avenues crossed the cut, they were set on overhead bridge structures over the decking.

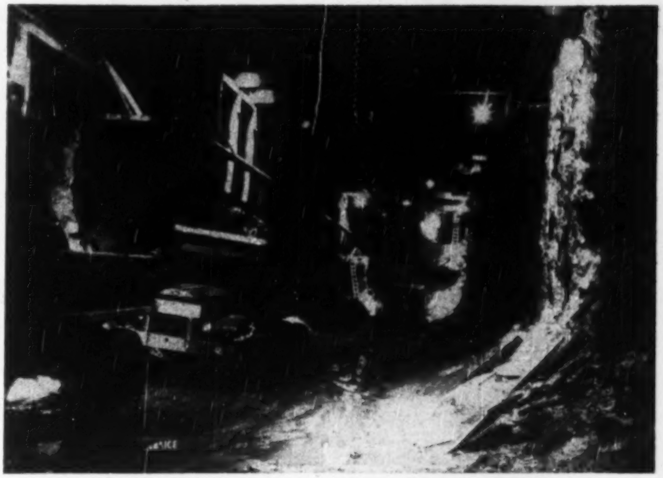
Electric and telephone conduits and ducts had to be lowered to permit


North ℄
Temporary gas bypass
6"x 12"
12"x 12" deck timbers
Temporary gas bypass
South ℄
6"x 12"
10"x 12"
30 WF 172
10"x 12"
Area wall
Tie rod
20" water
21 WF 62
Tie rod
Utility ducts
Utility ducts
12"x 12" post
Foundation wall
Underpinning wall
18 W 114 soldier beam
Temporary sewer pipes
18 W 114 soldier beam
Foundation wall
Exhaust duct
New north sewer
New south sewer
Underpinning pier
4" lagging
U anchors
U anchors
Tunnel roadway
Fresh air duct
WEST 179TH STREET TUNNEL
Typical cross section looking east

UTILITY LINES HANG from temporary decking beams during construction. Gas mains were required to be kept above ground for safety. Buildings all along the way had to be underpinned early in the job.

the setting of deck beams, from which they were eventually hung.

Maintenance and temporary support of water mains caused considerable difficulties. Before construction of the tunnel, the Washington Heights area was serviced by a water pumping station located just east of the tunnel's east portal. To clear the way for the tunnel a new pumping station was built north of W. 179th Street. Until the new station could be put into service and tested, two complete systems of piping had to be supported and maintained—while blasting and excavating operations went on immediately below. As a result, extreme care had to be exercised, and progress was slow during the excavation in Amsterdam Avenue. Nor did the danger lessen as the work proceeded westward; a 36-in. suction line extended to St. Nicholas Ave., and the 20-in. went to Broadway.

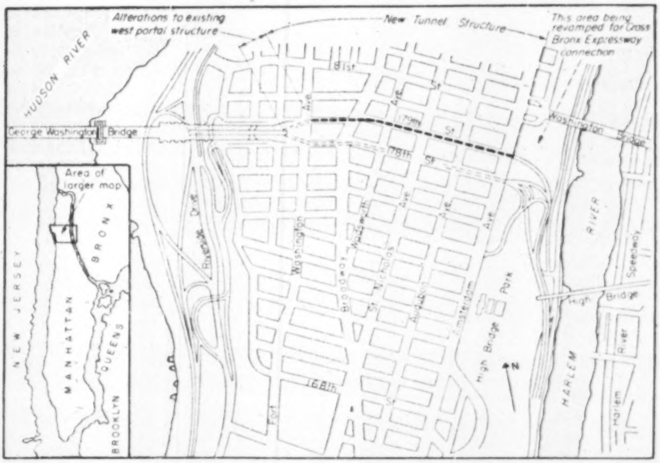

DEEP CUT—Excavation averaged 36 ft deep, in rock most of the way. Picture had to be taken during lunch hour; rock dust foiled photography other times.

- **Tunneling method**—It was a typical cut-and-cover job. Where borings indicated that rock would be reached at a considerable depth below street grade, soldier beams were designed to carry the temporary decking and to hold the side lagging. Soldier beams varied: 12 WF 53, 18 WF 114 and 24 WF 100, depending upon the lengths required and space available.

Where possible, beams were driven by a pile driving rig. But toward the east end of the project it was found that most of the street had previously been backfilled with riprap, and it was necessary to hand excavate individual pits to a depth below the obstructing fill before soldiers could be set. Where rock was not deep, decking was first set on cribbing until the completion of the sewer excavation (see drawing) when timber posts could be erected.

Stage one of excavation involved removing the pavement and going down 8 to 14 ft. Deck beams designed to carry a concentrated load of 40 tons were set 10 ft on centers and fixed to the soldier beams. Generally, 30 WF 172 beams were used, but where the span was increased, 33 WF 230 beams were employed to support 12x12-in. timber decking—chosen to facilitate openings for excavation and other construction operations.

Stage two consisted of the removal of earth and rock on either side of the street to allow for construction of two new reinforced concrete sewers. These were designed to replace the existing sewer, which had to be removed from the middle of the street to make way for the tunnel structure. The sewer-bench excavation extended 14 to 18 ft below street grade and had to be done through the decking with clamshells and trip buckets. Temporary sewer flumes were hung from the deck beams to replace the existing sewer which was then demolished.


Alterations to existing west portal structure
New Tunnel Structure
This area being revamped for Cross Bronx Expressway connection
HUDSON RIVER
George Washington Bridge
181st
Ave
Ave
St
179th
St
178th
St
Washington Bridge
Riverside Drive
Washington
Broadway
Wadsworth
St Nicholas
Ave
Audubon
Ave
Amsterdam
Ave
High Bridge Park
RIVER
HARLEM
Speedway
High Bridge
River
Harlem
168th
St
Fort
N
Area of larger map
NEW JERSEY
BRONX
MANHATTAN
QUEENS
BROOKLYN
FOR FUTURE TRAFFIC—The W 178 Street Tunnel was dug in 1931, opened for use in 1939 in anticipation of a world's Fair traffic. The new W 179 Street job is being done to handle traffic from the Cross-Bronx Expressway, now under construction.

The third stage of excavation then proceeded, with a power shovel removing the remaining earth and rock down to sub-grade of the tunnel. When the invert was excavated, a sub-drain was laid and the tunnel was ready for start of concreting.

The completed tunnel will have a ceiling height of 14 ft. Ventilation will be by fans in a building located midway of the length. Fresh air will be forced through a duct beneath the roadway and exhausted through another above the ceiling. The roadway will be surfaced with brick, side walls and ceilings with ceramic tile.

At present the $8,250,000 tunnel is about 50% finished (dollarwise) with final completion scheduled for March, 1952.

The West 179th Street Tunnel is being built by the Port of New York Authority, for whom Byron Gruver is resident engineer. The general contractor for the project is Poirier and McLane Corp., of New York; John J. Decker is project manager. Spencer, White and Prentis, Inc., did all underpinning; Harry Armstrong was their superintendent on the job.

Leakage through arch dam stopped after many attempts

• Although in continuous use for 23 years despite porous concrete, Bowman Arch Dam in California now is nearly watertight

As a result of repair work carried out during the low-water periods of the years 1945 and 1949, leakage through the concrete in Bowman South Arch Dam in California—a source of trouble since the dam was completed in 1927—has been reduced to negligible amounts. This conclusion is based on observations made at the dam when the reservoir was filled early this year to store water for the current irrigation season.

The South Dam is a concrete arch 130 ft high, which, with the main Bowman Dam (a rockfill structure on Canyon Creek a tributary of the Yuba River), forms the Bowman Reservoir of the Nevada Irrigation District in Nevada and Placer Counties. The rock-fill dam is the main structure of the project. It was built in 1926 to replace the original Bowman Dam when a decision was reached to increase the size of the reservoir. The South Dam was built at the same time to close off a gap in the rim of the reservoir. A fault zone passes through that gap.

Construction of South Dam was started in July, 1926, and finished a year later. The contractor's crew was inexperienced, there was great haste in construction and weather conditions were adverse. Poor concrete was almost inevitable under such circumstances. A further contributing factor was the fact that crushed granite was used for fines in the concrete instead of natural sand. The sharp characteristics of crushed granite and the lack of smaller fines made a harsh mix that did not flow easily in the chutes used to place concrete in these days. Consequently, water was added to the mix to speed its flow down the chutes, which resulted in segregation. It is believed, also, that in the earlier stages of the work at least, there was a considerable loss of cement in water escaping from the forms.

Although concrete in the upper 55 ft of the height was placed in a single month (June 1927) in a race against the rising reservoir level, there was much less porosity in the upper part of the dam despite its thinner section. This is attributed to the fact that the source of materials was changed that spring. Instead of crushed granite, the fines consisted of glacial sand from a moraine down-stream.

• Some remedial action—Excessive seepage—apparent as soon as water was stored behind the dam—led to a succession of attempted remedies. During the low water that followed the first summer storage, "Inertol" was applied to the upstream face on an area or band about 12 ft high, some 70 ft below the crest. This helped, but during extreme low reservoir level a year later gunite was applied on the upstream face, beginning at the lower edge of the treated band and extending down 25 ft to the lowered water level.

Thus the lower, thicker parts of the structure got the most remedial treatment. Despite this, leakage continued to be greater in these areas than in the upper portions of the dam.

In addition to these applications to the upstream face, some grouting had already been done (in the winter of 1927-28) in the foundation under the dam and in the construction joints between adjacent concrete blocks. This latter grouting had little effect on leakage, probably because of copper waterstops at up- and downstream edges of construction joints.

Despite all these treatments, leakage still continued. It was in fact evidenced in the form of jets spouting out of the face of the dam. As many as 20 leaks were discernible in some of the sections or "blocks" 44 ft in length (as measured along arc of the arch.)

• Grouting undertaken—However, in spite of leakage, the dam has always continued in full service. Major corrective measures in the form of grouting the concrete of the dam itself were delayed 18 years, until 1945.

The plan undertaken then was to drill holes from the top of the dam down through concrete to the vicinity of leaks that appeared on the face and to force in grout to close off the major flows first. These holes were not put down on any regular pattern of spacing but were drilled where it was hoped they would accomplish the most good.

The grouting program was continued through the summer and fall of 1945 until cold weather came and the risk of getting snowed in at the dam forced the contractor to remove his equipment.

In the 1945 grouting program 3,628 sacks of cement were forced into some 40 holes ranging from 30 to 125 ft in depth and having a total length of 2,972 ft. This was a cement-water mix, without sand. The procedure was to drill a hole to the desired depth and then grout from the bottom up, using packs placed successively 20 ft above the areas to be filled in. Pressures began with 30 psi at the bottom of the drill holes and decreased to 5 lb at the top. The procedure was to begin with a thin mix, say, 6 gal of water per sack of cement, and if conditions justified to thicken this to 5 gal of water per sack.

• Some success—The result of this work was that some areas were completely dried up, some leaks were entirely stopped and the total leakage was cut down by about 50%. At that time, based on amount of leakage observed before and after the 1945 grouting operation, it was estimated that the work done was only one-third to one-half of the grouting necessary to stop all leaks. However, the cost of this drilling and grouting was high.

As a result of that 1945 work, leakage through the concrete was reduced to one cubic foot per second and further remedial measures were not undertaken until last year.

An amazing fact observed during the 1945 grouting was that grout would creep through the structure as much as 60 ft horizontally and 10 or 15 ft vertically from the point of release. Frequently drill holes "caved in" and the grout would drain away even before pressure could be applied, despite the usual caulking of the face with lead wool in advance of the grouting. Thus the grouting operation on the dam itself could not be as well controlled as could have been desired.

• Other action—A further remedial program carried out between July and October, 1949, included an attempt to more effectively seal the upstream face by application of the patented material "Metalon." Again the work was done from a floating barge during low water in the reservoir. All loose concrete was removed, including much of the gunite surface placed in 1945 (some of which had separated as much as an inch from the face of the original concrete).

All cracks and breaks were chiseled

out to solid material; holes and cracks were then filled with a mixture consisting of 3 to 1 sand-cement mortar in which the cement contained an admixture of "Metalon" amounting to 5 percent of the cement, by weight. After the mortar patches had set, the entire exposed area of the upstream face was given five coats of "Metalon" applied as paint at one day intervals. This treatment covered an area of some 25,700 sq ft comprising a height of 87 ft on the upstream face of the dam. In the ensuing fall-reservoir season (1950) observations indicate a leakage reduction of about 80 percent.

Such leakage as appears is confined mostly to a few small streams spurting from the contact between the dam and the abutment rock. The streams are more or less parallel to the downstream face of the dam which is taken to indicate that the pressure is from within the abutment. This leakage is not considered at all serious.

It is notable that despite the porosity of the structure and the fact that there is much frost at the 5,500-ft elevation where this dam is located there has been no frost damage recognizable as such.

Headquarters of the Nevada Irrigation District are at Grass Valley, Calif.; since 1947 Forrest F. Varney has been chief engineer and manager.

(Editor's Note: The foregoing in manuscript form, was sent to F. R. McMillan, the well-known authority on cement and concrete, who makes the following comment.)

"This manuscript calls to mind my visit to Bowman South Arch Dam some 20 years ago. I concluded then, even before later remedial measures had stopped the bad leaks then flowing, that the dam itself was in no danger.

"If we assume the 22,500 cu yd of concrete in the dam itself had 6 or 8 gal of water per cu yd in excess of that needed for good concrete, this excess water alone would represent a void space of, say, 750 cu yd. Much of this excess would be in the form of underaggregate pockets and gross honeycombing. Some would be more or less uniformly distributed interconnected air-and-water voids.

Considered as a whole, therefore, grouting, which amounted roughly to 75 cu yd, was only about 10% effective. However, it is only the gross cavities that could be closed by grouting, so that this 10% in the places of greatest need could easily shut off a high percentage of the seepage.

"Errors or carelessness in placing still account for the majority of defective concrete. It has always seemed to me far better to aim to get in a structure, particularly in a dam, a 100% filling of the form with a fairly good concrete (say 90% perfect) than to get 100% perfect concrete quite generally but with a small percentage of very poor concrete in other places.

The danger is that bad (over-wet and non-uniform) concrete tends to segregate and build up considerable volumes where porosity will be high. The result is that vulnerable spots develop leaks or rapid disintegration, and give the structure as a whole a very bad appearance and performance. This even though the areas affected represent only a minor percentage of the whole.

"The Bowman South Arch Dam is at once an example of poor concrete construction and a source of increased confidence in concrete as a construction material."—F.R.M.

Smog-reduction plan hits incinerators in 350,000 L. A. County back yards

Los Angeles County has been presented its first comprehensive plan for elimination of home incineration—and thus smog reduction—by a vast rubbish-collection and disposal system to cost $17,000,000. The plan affects 1,700,000 county residents.

There are around 350,000 backyard incinerators in the county. The City of Los Angeles is not included in the proposals, submitted to county supervisors by Chief Engineer and General Manager A. M. Rawn of the County's sanitation districts—which cover a 475-sq mi area through 19 districts.

The 300-page Rawn report took a year and cost $20,000. It proposes:

(1) That sanitation districts bond themselves and take over the collection and disposal of all rubbish and garbage. An exception would be noncombustible material, on which salvage would be left to private operators, but under district supervision.

(2) That land-fill disposal facilities be used in conjunction with large public smokeless incinerators which would supplement and eventually supplant land fill operations. Cost of land fill disposal is figured at from 48¢ to $1.20 a ton while incineration is placed at $2 a ton.

(3) Separate garbage collection, with material being taken to central grinding stations for disposal in the districts sewer systems.

(4) Elimination from the plan of areas in which the population is less than six persons an acre.

(5) Issuance of 40-year bonds to pay capital costs of inaugurating the collection and disposal system. Also recommended is an ad valorem tax for annual operating costs.

• Eliminates backyard incinerators—The plan would eliminate backyard incinerators, which the county Air Pollution Control District has tabbed the greatest single contributor to smog.

Cost of the smokeless county-operated incinerators under the Rawn plan would run about $600,000 for a 300-ton unit operating 24 hours a day.

The report further estimates that two of the three land fill disposal sites proposed will last until about the year 2000—if used in conjunction with incinerators.

The Rawn report also suggests some gravel pits as suitable disposal sites, providing no water pollution threatened.

• Garbage grinding—Grinding of all garbage and its disposal through sewers is considered a certainty with hog farms on their way out.

Nine central garbage grinding stations are suggested, these emptying directly to sewers. Grinding stations would have rated capacities of from 10 to 15 tons per hour.

It is proposed that garbage be introduced to sewers in the proportion of 2 tons of wet garbage per hour to each cfs of sewage flow in the trunk sewer. At this rate the quantity of solids introduced into the sewage from the garbage will equal some 3,600 parts per million by weight, based on an assumed solids content in the garbage of 20% by weight.

The report says that although this represents an increase in total solids of some 300 to 400% over present sewage, "the total solids content would still be only .36% by weight—that is, the sewage is 99.64% water. It is not possible that any noticeable change will occur in the flow characteristics of the sewage due to this small addition of finely and uniformly divided solid matter."

The effect of ground garbage upon the joint disposal plant, owned and operated by the sanitation districts, will be to increase the quantity of solids removed in the primary sedimentation tanks. Since the sewage treatment plant utilizes ocean disposal as a secondary treatment process, the Rawn report found that there are no other effects of significant importance involving dumping ground garbage into the sewer system.

BOOK REVIEWS

California's highways

A Centennial Edition of "California Highways and Public Works" has been issued by the Division of Highways of the Department of Public Works of the State of California to celebrate the one hundredth anniversary of the admission of the state to the Union. Under the general title "From Trails to Freeways" this 167 page special edition is given over to a history of California's highways. That story begins with the trails marked out by the padres who in 1769 began the establishment of missions as part of the plan of the Spanish government for colonization of the area. Fur trades followed them, and in the early Eighties came the wagon trains of settlers over what became known as the Emigrant Trail.

Establishment of the first overland stage route took place soon after California became a state, and as passes were opened with great difficulty through the mountains, more stage lines were set up along tortuous routes that now are followed by easy highways.

Development of a state highway system began in 1895 with the creation of the State Bureau of Highways. In 1902 the state's constitution was amended to permit establishment of a system of state highways; the first bond issue for highways was passed in 1909, and in 1912 "California State Highway Contract No. 1" was let.

This Centennial Edition is copiously illustrated with many rare pictures of old roads and bridges as well as many views of California's modern highways.

Handbook brought up to date

CIVIL ENGINEERING HANDBOOK — Third Edition, L. C. Urquhart, editor in chief. 1,002 pp. McGraw-Hill Book Co., New York, Toronto and London. $8.50.

Progress in all branches of civil engineering during the last ten years is reflected in the latest revision of this well known handbook. Photogrammetric surveying and information on legal authority and liability of surveyors have been added to the section on surveying. Also, in the light of new developments, additional material on soil mechanics has been added to the section on foundations, and revisions have been made in the sections on water supply and purification and sewage disposal. Changes in design and construction practices are incorporated in the sections on stresses and steel design. Fluid flow is given a new treatment in the hydraulics section. And the transportation section has been completely rewritten. It now includes airport engineering, as well as new data for the design of pavements.

What affects concrete and how

INFLUENCES ON CONCRETE—By A. Kleinlogel. Translated from the fourth (1941) edition by F. S. Morgenroth. 281 pp. Frederick Ungar Publishing Co., New York. $7.50.

EINFLUSSE AUF BETON UND STAHLBETON—By A. Kleinlogel, K. Walz and H. Vierheller. Fifth edition Published by Wilhelm Ernest & Lohn, Berlin, Germany.

[While the fourth edition of Prof. Kleinlogel's book was being translated for distribution in this country, a fifth edition was being prepared in Germany. As this fifth edition (in German) was received here about the time the translation of the fourth edition was published, both were sent to Edwin J. Callan of the Concrete Research Division of the Waterways Experiment Station, Vicksburg, Miss., for review. Mr. Callan's comment on the two books follows.—Editors]

This review is based primarily upon the English translation of the 4th edition of Prof. Kleinlogel's book. A short discussion of the 5th edition, principally as it modifies the translated 4th edition, is given. It is felt that the translation is not rendered obsolete by the appearance of the new edition, since the changes are mostly of general nature.

The English translation is a useful compendium of information concerning concrete as a material of construction. It is fashioned as an encyclopedia, with numerous alphabetically listed articles detailing the properties of concrete and the effects of various conditions and materials upon its utility. Despite some shortcomings, it has a definite place in the reference library of those who are frequently concerned with concrete practice. Much of the importance of the work lies in its collection of data that are scattered and otherwise often not readily available.

The translation of the 4th German edition appears to follow the original quite faithfully. There are several deficiencies in the translation which impair to some extent the usefulness of this work. In the translator's difficult task of being faithful to the original and attempting simultaneously to ease the demands upon the reader, some difficulties with units may be expected. Here, the use of the metric system is generally followed, with some exceptions. The major changes to English units which would have been desirable for the benefit of the reader would be converting strength data from kg/cm^2 to psi, and sieve data from millimeters to standard U. S. sieve numbers. In the use of formulas for relationship between modulus of elasticity and compressive strength, on p. 83, for example, it is necessary to recall that all values are in kg/cm^2, and not in psi.

Another major shortcoming for the reader who is more than cursorily concerned is the deletion of most references to other than American publications. This is unfortunate, since the proper evaluation of the data and statements presented often depends upon the age, scope and reliability of the references, some of which, in the German edition, are well over 50 years old.

Those articles dealing with general properties and practice are more catholic in scope, but based primarily upon European concepts. They contain a considerable amount of digested information together with recommendations for protection or improvement of concrete with regard to the property under discussion.

A set of basic rules given at the beginning of the book gives the author's philosophy in regard to concrete, with which most workers in the field will be in full agreement. The specific articles, those which relate the influence of specific chemicals to concrete, are of considerable use to a wide audience, particularly to the person for example, who is queried by the farmer as to the effects of sugar beet greens on his concrete silo. They are well-collected, and cover such diverse topics as effects of beer, cucumbers, oxalic acid, stone borers, and zinc slag. A great deal of miscellaneous information covering almost all phases of concrete practice is found in this work.

The 5th German edition, published in 1950, continues the style and arrangement of previous editions without fundamental revision. The old articles have been revised to accommodate newer developments in concrete which have come to the fore during the past decade. Some new articles such as on prestressed and vacuum concrete and air-entraining admixtures have been added.

To sum up, the reviewer feels that this volume is an excellent reference work on concrete from the European standpoint, and that the miscellaneous information is of much value. There would appear to be a desirable place for a volume of this type, based on American practice and specifications, containing similar information.

A MESSAGE TO AMERICAN INDUSTRY • ONE OF A SERIES

America's Road to Victory

... Let's Increase Production

This is the time to speak out—now—at the beginning.

Our industrial program for re-armament is getting off on the wrong foot.

The talking and writing about it emphasize the wrong things.

Its headline words are "cuts" and "controls."

Those words make bad propaganda for the cold war.

"Cuts" and "controls" are no words to challenge the imagination and energy of our own people. They won't impress the masters of the Kremlin. And they can only make it appear to the rest of the world that America thinks it can defend the free way of life by abandoning it.

America stands as the world's champion against aggression because America has become the most powerful free nation in the world.

How did we get that way?

Not by putting ceilings on wages; not by rationing or clamping iron-clad government controls all over business and industry.

To be sure, some temporary controls are necessary to channel very scarce materials speedily to use for defense. So, too, are special taxes and credit restrictions needed to combat inflation. But they will be fatal if they blind us to this fact:

We became the strongest nation in the world by out-producing every other nation.

Production—The Final Answer

Next year our government is planning at least a $40 billion military program. Instead of planning only on controls to divert $40 billion of production from the making of civilian goods to the making of military supplies, we should be figuring out also ways to push up total production.

Of course, our industrial plant is running at close to "capacity" now. And our labor force has reached almost full employment. There isn't much slack to be taken up.

Can even the United States add a $40 billion miracle of production on top of what it is already doing?

Our answer is "Yes"—and within two years. It can be done by adding about $6 billion each year to our program of capital investment which now runs about $22 billion a year.

Part of this added production will come from expanding our industries. The steel companies, for example, already have plans to increase their capacity almost ten per cent in the next two years.

But by far the largest part of that $40 billion of added production must come from higher productivity—raising industry's efficiency.

continued on next page

To meet our goals we need to raise our productivity five per cent a year.

Can it be done?

The answer is an emphatic "Yes."

Raise Industry's Productivity

McGraw-Hill's studies of industry's equipment show that there are countless opportunities for improving efficiency. Our manufacturing industries alone need at least $35 billion of new equipment to raise their facilities to first class technical standards.

Here are some of the broad possibilities reported by the trained editors of McGraw-Hill's business magazines:

In many manufacturing plants as much as 40 per cent of workers' time goes into moving materials and parts – shifting things about within the plant between processes and to and from shipping platforms.

FACTORY estimates that improved materials handling equipment and methods might well cut handling costs twenty-five per cent and save annually over 650,000 man-years of unnecessary labor.

Modern machine tools designed since World War II are 40 per cent more productive, on the average, than is old equipment. But AMERICAN MACHINIST surveys show that 95 per cent of industry's machine tools are of designs at least ten years old. Replacing them could raise productivity of the metalworking industries at least ten per cent – enough to absorb a major share of the metalworking industries' part of the defense program as now planned.

In coal mining, latest equipment and methods can raise productivity sharply. The editors of COAL AGE estimate that production of bituminous coal could be raised from seven tons per man-shift to ten within three to five years.

Many new textile production techniques are 50 per cent to 75 per cent more efficient than those in use now. If plants could be fully modernized, and full use made of latest management methods, TEXTILE WORLD estimates that output-per-manhour would rise 20 per cent. *A FOOD INDUSTRIES study indicates that modern equipment plus the best management techniques could raise productivity in food processing at least 20 per cent.*

These are just some of the opportunities that industry can seize and by which the nation can profit.

A Nation-Wide Effort

Of course, industry itself can't do the whole job. Labor, government and all the rest of us must cooperate.

Government's part is to see that its emergency controls are so applied that they will increase productivity and thus make possible an early lifting of such controls.

Labor's part is to help in the development of labor-saving methods and machinery and to welcome their adoption as the only sure way of continuing to advance the American standard of living while maintaining the American free way of life.

For all of us the job is to work constantly for an expanding, ever-stronger America with constantly growing productivity; not a pinched and shackled America cooped up under wage and price ceilings and tied to a ration card.

Challenge to Industry

Here is a sharp challenge to industry to study the best work-methods that are being reported – to use every minute and every dollar it can to replace obsolete equipment.

Here is a sharp challenge to government to do everything within its power to make its control policies and its fiscal policies strengthen the incentives to industrial modernization – to demand sacrifice for a purpose and not for effect.

The job to which such opportunities point will take time – though nothing holds back adoption of some of the simpler improvements in work-methods reported in business magazines all the time.

But increasing production is our one best hope that we may be spared the full array of price, wage and production controls now and be freed eventually from all controls.

General Omar Bradley has said that the protection of our national independence calls for "long-range commitments that we are willing to carry out."

A long-range commitment to fight this battle for peace with America's most powerful weapon – industrial productivity – is the surest guarantee of victory for the free world.

Let's make that commitment – now – at the beginning.

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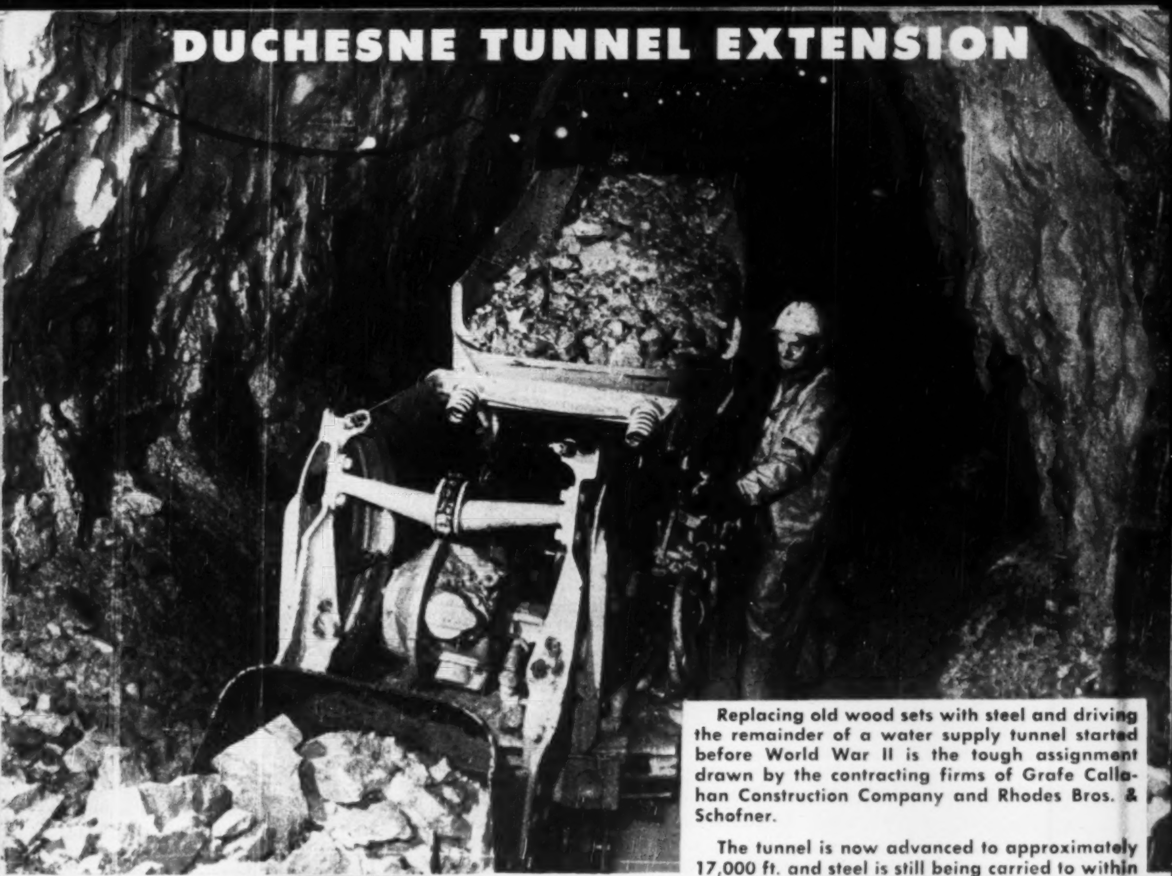
DUCHESNE TUNNEL EXTENSION



Replacing old wood sets with steel and driving the remainder of a water supply tunnel started before World War II is the tough assignment drawn by the contracting firms of Grafe Callahan Construction Company and Rhodes Bros. & Schofner.

The tunnel is now advanced to approximately 17,000 ft. and steel is still being carried to within a few sets of the face.

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The Superintendent says: "They're the best mucking machines I've ever seen. We run 'em at 135 pounds pressure and they really bale out the muck."

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(Above) Operator Leon LeFerie on Model 40 Rocker-Shovel. (Inset) r. to l., Merl C. Miller, Master Mechanic; W. Roberts, Shifter; and R. C. Blasongame, Supt. (Below) Special model 40 and 4 yard cars pass on California switch.

A274

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READER COMMENT

Steel bid low for coliseum

Sir: The article, "Cylindrical Roof for Circular Coliseum," which appeared in ENR Nov 2, p 30, contains a misleading statement: ". . . the two lowest of the three bidders on the arch barrell, frames and footings were lower in price for concrete than for steel." The implication is that their total bid for the arch barrel, frames and footings was lower for concrete than their total bid for the corresponding items or the steel design. Such was not the case.

According to the bid tabulation, the J. A. Jones Construction Company's superstructure bid was $577,500 for the concrete design and $579,000 for the steel design. These figures show a saving of $1,500 for the concrete superstructure.

The J. A. Jones' bid for superstructure plus substructure, however, was $1,244,000 for the concrete design and $1,219,000 for the steel design, showing an overall saving of $25,000 in favor of the steel design. Since the latter figure is the more significant, and since the opposite conclusion is implied by the author's statement, it would seem only proper that all the facts should appear in the record.

While it is true that, at the time of the bidding, structural steel being under quota, the completion date for the steel design was so much extended beyond that of the concrete design that the owner elected to go ahead with the more expensive design, it may be of interest at this time to note that the contract has not yet been completed. The much publicized completion time of 500 days was up some 115 days ago and, judging by the present status of the work, the actual elapsed time may not show any material saving over the 730 days promised on the steel design.

T. R. Higgins
Director of Engineering
American Institute of
Steel Construction
New York, N. Y.

St. Lawrence project

Sir: The first news item in the Nov. 23 issue of Engineering News-Record entitled "Labrador Ore" should at least be concrete evidence to the publishers of Engineering News-Record of the importance of the Labrador ore and the necessity of adequate means of transportation by means of improved water facilities to the existing heavy industry in the Great Lakes area.

The transportation of railroad construction equipment referred to in the above news item has been going on for some time. The work on this three hundred and some odd miles of railroad is being started from several points along its route and much of the construction equipment has been flown in by plane to expedite the work.

When such interests as the M. A. Hanna Co., Armco Steel Corp., National Steel Corp., Republic Steel Corp., Youngstown Sheet & Tube Co., Wheeling Steel Corp., Hollinger Consolidated Coal Mines, Hollinger North Shore Exploration Co., and the Labrador Mining and Exploration Co. unite to form the Iron Ore Company of Canada for the development of the Labrador iron ore deposits to maintain our ore supply, it is nationally economically significant. The St. Lawrence project is needed for ore transportation.

Even the U. S. Steel Corp., which has the largest ore reserve in Minnesota and other locations in this country, is working on future developments in foreign countries, especially in Venezuela. Such ore could only be transported to this country by sea routes which would be very vulnerable in time of war. Do you not remember the record of our oil tankers lost along our own coast in the last war?

Canada is desperately in need of the St. Lawrence power and could also use to great advantage the improved waterway facilities. In fact, Canada is contemplating proceeding on such a development independently.

The State of New York pays over 20 percent of all federal costs. These costs include the development of numerous other similar projects much less desirable and less economical than the St. Lawrence project. Why the discrimination? The St. Lawrence project would be self-liquidating.

Do you not think that it is time that the Engineering News-Record became really interested in making the St. Lawrence project a reality so that the people might benefit?

William T. Field
Consulting Engineer,
Watertown, N. Y.

Editor's Note: Engineering News-Record, for some time past, has taken the position that the seaway and power project should be built. To that end we have advocated a new agreement between the two countries to replace the 1941 agreement, which still is before Congress, because that agreement is out of date. Canada could not undertake the work independently without violation of the Boundary Waters Treaty of 1909.

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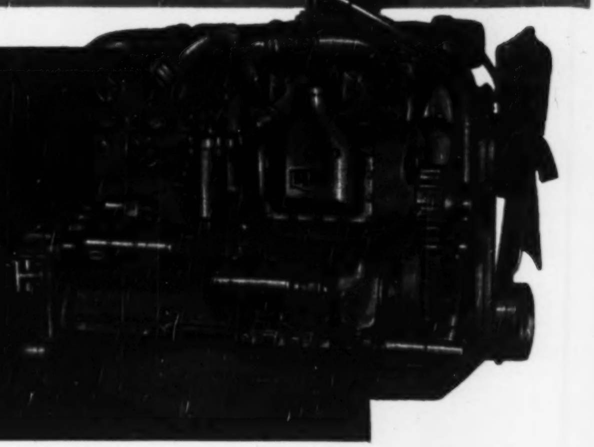

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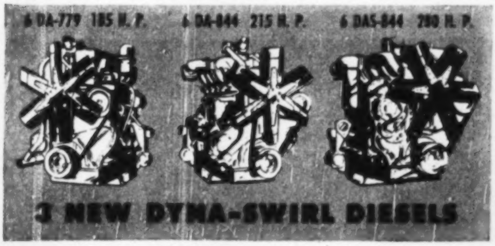
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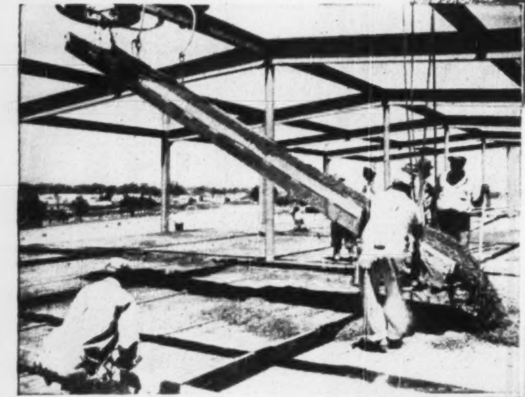
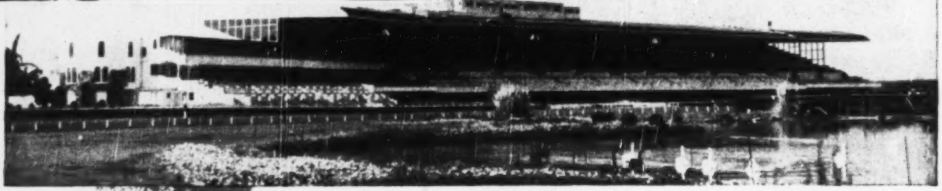
BC-6

BUDA

how **Pittsburgh Steeltex** beat the horses at Bay Meadows



While pouring was in progress work continued on the floor below.



Completed renovation of Bay Meadows Track, San Mateo, California

When it was decided last year to extensively remodel and enlarge the famous Bay Meadows Race Track at San Mateo, California, there were just four months grace before the opening race. In constructing the vast concrete decks called for in the plans, it was mandatory that materials be used that would provide speed and economy on the job, and maximum safety for a vast number of spectators. *That's why Pittsburgh Steeltex Floor Lath was the best bet at Bay Meadows* . . . why 200,000 square feet were used on the job. Crews were able to continue normal operations underneath the floors as pouring was in progress, and the slabs were properly reinforced with famous Steeltex heavy, welded wire mesh . . . properly cured because moisture was retained by waterproof backing. For detailed information on how Steeltex can help you win *your* race with construction time, see Sweet's or write for catalog D.S. 133, Dept. ENR, Pittsburgh Steel Products Co., Grant Building, Pittsburgh 30, Pa.

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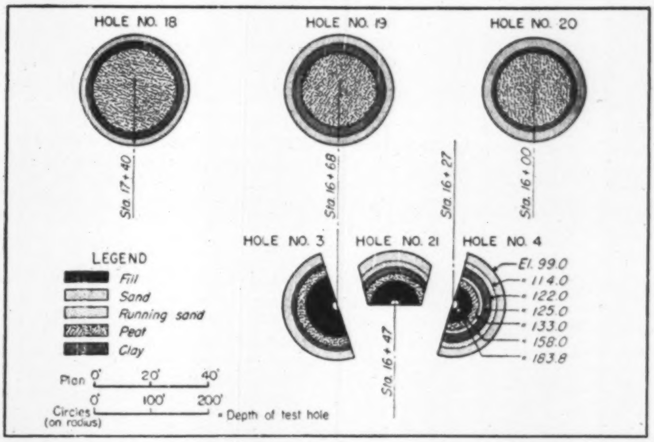
FIELD AND OFFICE



GRAPHIC PRESENTATION of subsurface conditions plotted right on a plan locating borings helped engineer convince owner where best to spot structures of a proposed plant. Radii of white circles indicate distance of ground level below base elevation. Widths of other concentric rings show thicknesses of various soil strata.

Plotting borings to show best layout for a plant

A way of indicating test hole borings to best advantage in showing an owner where to locate his proposed buildings has been developed by F. W. Carroll, consulting engineer of Cleveland, Ohio.

On a recent job Mr. Carroll was given logs of 150 test holes, ordered by the owner and drilled in an irregular pattern at the site of proposed construction. The plant was to include several buildings, sewers, water pipes, steam lines and process piping. The available area adjoined a site where other builders had once abandoned a building project when unloaded pile caps could not be kept from sinking and tilting. Known underground peat bogs meant variable and unfavorable subsurface conditions.

The owner had some preconceived ideas about the plant layout. But, from the borings there appeared to be only certain spots in the area where the principal structures could be built with safety—without danger of undue settlement. When it came to discussing necessary changes in the general layout of the plant and getting the owner's approval of them, a graphic presentation of what the test holes indicated was developed. The difficulties that would be encountered underground were presented in a very simple manner that would lend itself to use on most projects.

First, a plan was made to a convenient scale (in this case 1 in. = 20 ft) indicating the location of the test holes. Then with the location of a test hole as center, concentric circles were drawn to a scale of 100 ft per inch with radii equal to the depth from a base elevation to various changes in the soil conditions. The base elevation was taken as the level of the ground at the test hole situated highest.

A series of different colors was adopted (black and white symbols will do, as above), each one representing a different soil. Each ring was colored to represent the soil within the elevations indicated by that ring. A legend on the drawing described the various soils. Elevations of the changes in soil can be noted on the drawing, as for test hole No. 4, where desired.

The accompanying drawing is a plan of only a small portion of the entire area that was under consideration. It shows the actual location of test holes and the soil encountered in each; it is drawn to scale.

Test holes No. 3, 4, and 21 are so close together that there was not sufficient room to plot the complete circles. Actually, any size sector of circle will do.

Concrete and composite piles were used on the project. Lengths varied from 10 to 60 ft. Continual inspection was maintained during the driving, and a log of the blows per foot of penetration was recorded.

According to Mr. Carroll, the results of care in site selections for the various structures, together with the close inspection of the pile driving, proved perfectly satisfactory.

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B. H. Mueller Co., 6625 Delmar Blvd., St. Louis 5, Mo.
Ole K. Olsen Co., 823 Perdido St., New Orleans, La.
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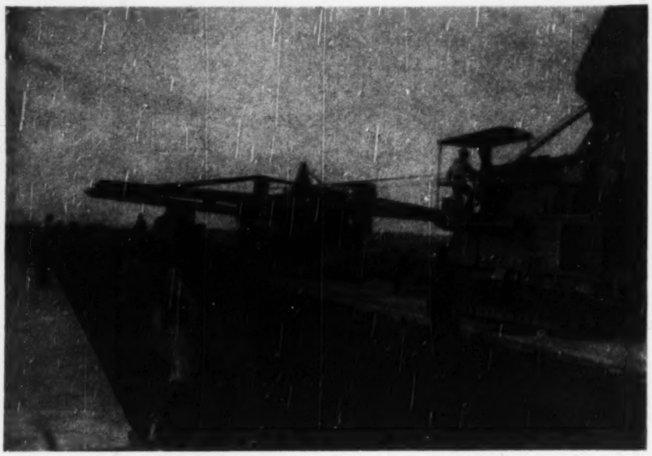
DEVELOPMENTS ABROAD



LOCAL LABOR caught on fast to the use of paving equipment formerly unfamiliar to them, and little outside help was needed on Beirut International Airport.

Lebanese build airport to get Middle East trade

Beirut International Airport, opened last summer, is Lebanon's bid for East-West commercial air traffic which up to now used either a southern route through Cairo or one to the north through Damascus.

This $12,000,000 effort to claim a bigger share of Middle East air trade has been made by the Lebanese with a minimum of outside technical assistance. Tackling a grading and paving job of proportions never before met, the local Ministry of Public Works is building an international class airport that is expected to handle 150 operations each day (formerly, 25 operations daily connected the old Beirut Airport with other Arab states).

The site, a coastal sand dune six miles south of Beirut, required moving of 4,000,000 cubic meters of earth in the grading operation. Locally manufactured portland cement won out over costly imported asphalt for pavements, but there was no modern paving equipment in the country.

Needed equipment was acquired and Lebanese contractors quickly caught on to its use. Simplicity of operations, strict supervision of labor, and rigid control of materials made up for lack of experience.

An American airport engineer was engaged to assist in an advisory capacity, and when new equipment was delivered, American operators were imported for a three-month period to train the Lebanese. Other than that, the project had only native personnel.

The airport will not be completed for another year. Two hangars have been erected; others are planned. An administration building is under way.

This information was sent to ENGINEERING NEWS-RECORD from Lebanon by Arthur E. Howard, American Technical Advisor, ministry of Public Works, Beirut.

Foreign Briefs

Ethiopian dam—The Egyptian Minister for Public Works says that agreement has been reached among Egypt, Britain and Ethiopia for the construction of a dam at Lake Tsana, Ethiopia. Work on this and three other irrigation projects is expected to start simultaneously within the next six months. A Ministry of Finance spokesman said that the government intends to float loans for financing these projects as well as another loan for the execution of the Aswan Dam hydro-electric project and for the establishment of an iron foundry in Egypt.

Wharves at Beira—A contract for building new wharves and port facilities with the aid of Marshall Plan funds at Beira, Portuguese East Africa, has been signed by Portugal with Portuguese contractors. The work, which will begin soon and take about a year, is expected to lead to expanded trade with Central Africa and Northern and Southern Rhodesia.

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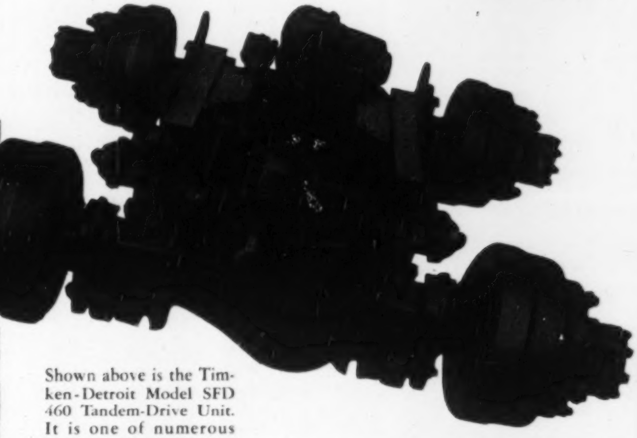

Shown above is the Timken-Detroit Model SFD 460 Tandem-Drive Unit. It is one of numerous models which are ideal for road building, transit-mixed concrete hauling, lumber hauling, excavating work, truck crane and shovel service — wherever the load is heavy and positive pulling power is required.

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MUNICIPAL AFFAIRS

OMAHA HAS A MASTER PLAN—Omaha, Neb., population 240,000, a 42-sq mi city near the geographical center of the United States, has developed a master plan and is putting it into effect. That plan includes a $5,500,000 auditorium; a $1,000,000 airport terminal building; a 4-story auto parking building; and $1,000,000 for expansion of recreational facilities. The park system already includes 56 parks with an area of 2,500 acres. There are two free bridges over the Missouri River. The city's water plant is valued at about $15,000,000 and is free of bonded debt. Omaha is the second largest livestock market in the world. The city is built on a plateau 80 ft above the Missouri River. Its streets are wide so that its traffic problems are not as difficult as those of many other cities.

Offstreet parking bonds OK'd for Illinois cities

Relief from downtown traffic congestion in Illinois' larger cities got a boost this week from the State Supreme Court.

Upholding a 1949 statute permitting municipalities to finance the development and operation of off-street automobile parking lots, the court cleared the board for action in Chicago, Danville, Springfield, Evanston, Kankakee, East Moline, and Taylorville—all cities that have been holding their plans for parking facilities until the court decided on this issue.

Under the 1949 statute, cities may issue revenue bonds for off-street parking lots. Money thus obtained would be carried and retired from income brought in by the parking facilities. Cities can either operate the parking lot outright or lease it to an operator on a rental basis.

Validity of the 1949 law was challenged by four taxpayers of Kankakee. They questioned the provision allowing a city to lease parking lots to private business men for operation. They contended that arrangements of this sort were unconstitutional.

A. L. Sargent, executive secretary, Illinois Municipal League, stated that the supreme court decision could well prove the salvation of Illinois' downtown shopping areas, especially those of large municipalities. Had the 1949 act been set aside, he said, many businesses might eventually have been forced to locate in outlying sections where parking conveniences for customers could be obtained.

St. Louis blight study—Monroe F. Brewer, who has been a city dairy plant engineer at St. Louis, Mo., has been promoted to chief engineer to direct the survey portion of the housing rehabilitation program under the city's minimum housing standards ordinance. The survey is to be made in cooperation with the city plan commission and the building division of the Department of Public Safety, and is to determine the extent of housing blight. It will also decide on the areas in which the ordinance is to be applied. In the meantime, authority for the city to spend $1370 for preliminary studies on urban redevelopment and slum clearance, from a $55,185 grant later to be made by the government, has been given by the Housing and Home Finance Agency.

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Carilloy "T" Steel greatly

ON THE MARION 5561—WORLD'S LARGEST POWER SHOVEL

THE mammoth 45 cubic yard bucket on Hanna's "Groundhog" is moving more than a million yards of overburden every month. Despite the exceptional punishment it receives, the U·S·S CARILLOY T-Steel lip-plate has already been in service much longer than any steel previously used.

Further, the higher physical properties of T-Steel have made possible design changes which are now under way and which should greatly extend lip life beyond present construction.

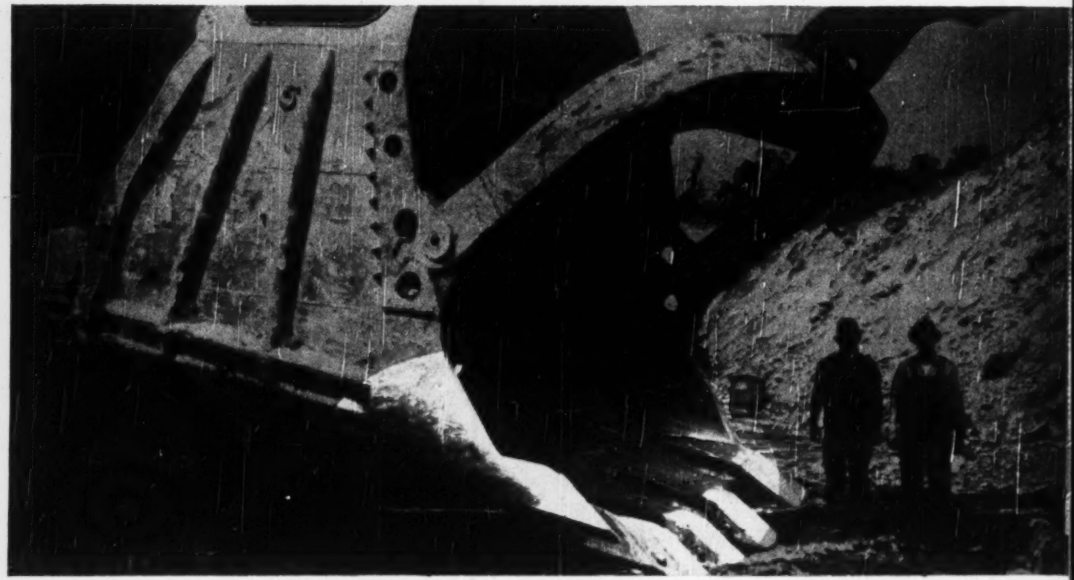
Here's what Hanna Coal Company says, as owner and operator, "The lip of this bucket (made from 4½" CARILLOY T-Steel) is one of the most critical sections and it takes a great deal of punishment when loading the rock strata we have at this location. At Marion Power Shovel Co., we have a *50-yard* bucket on order. It will be built almost entirely of T-Steel . . ."

In this new bucket, CARILLOY T-Steel will increase capacity 5 yards — almost *9 tons* — by cutting weight without any sacrifice in strength. And because it can be welded *in the field*, T-Steel construction makes it unnecessary to shut the shovel down for the many hours formerly required for shop repairs.

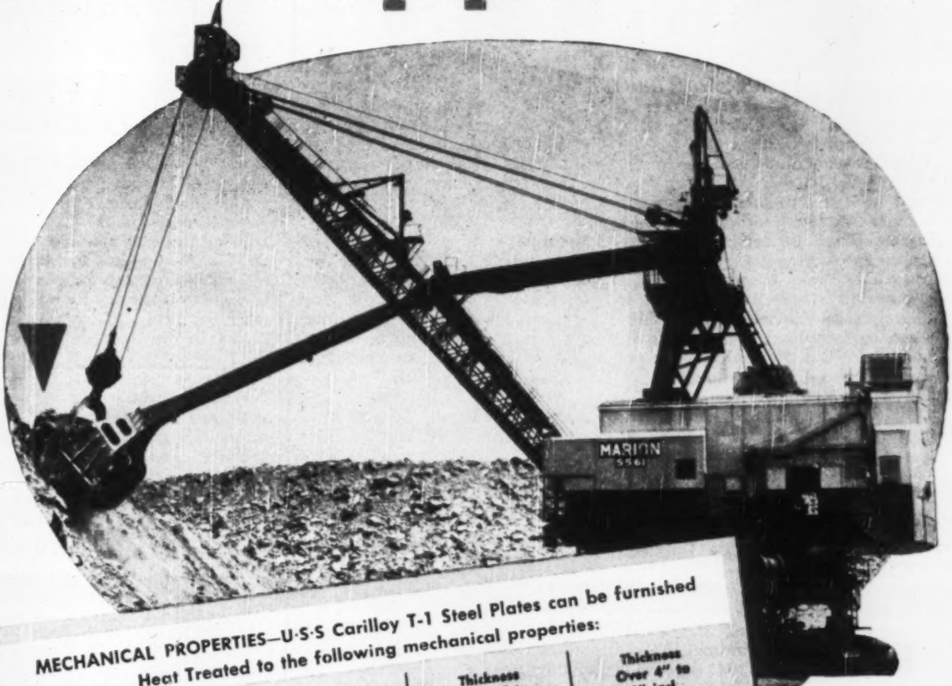
CARILLOY T-Steel, a product of United States Steel research, is a *low carbon* alloy steel, heat-treated with great precision. Minimum yield strength is 100,000 psi (for plates ¼" to 2" inc.) Furthermore, T-Steel will remain ductile at arctic temperatures—*even after welding.*

Welding does not lower the strength of the plate. If AWS electrodes E-12015 or E-12016 are used, welds remain 100% strong . . . both butt and fillet-welded specimens will break completely outside of the heat-affected area. As for toughness, laboratory tests have proved that, even after gas-cutting, T-Steel can be bent at more than 100°F. below zero.

CARILLOY T-Steel is normally produced in the forms of plates and bars. Nominal hardness is 250 Brinell, although 321 minimum Brinell can be furnished for abrasive conditions where a combination of high hardness, toughness and weldability is essential.



increases lip-plate life



MECHANICAL PROPERTIES—U·S·S Carilloy T-1 Steel Plates can be furnished Heat Treated to the following mechanical properties:

	Thickness ¼" to 2" incl.	Thickness Over 2" to 4" incl.	Thickness Over 4" to 6" incl.
Yield Strength, 2% Offset (min.)	100,000 psi	90,000 psi	90,000 psi
Tensile Strength (min.)	115,000 psi	105,000 psi	105,000 psi
Elongation in 2", % (min.)	18	17	16
Reduction of Area, % (min.)	55	50	45
	Thickness ¼" to ½" incl.	Thickness Over ½" to 1" incl.	Thickness Over 1" to 2" incl.
Cold Bend	180°D=1t	180°D=2t	180°D=3t

(Testing in accord with A.S.T.M. recommended practices.)

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UNITED STATES STEEL

MEN AND JOBS

Donald C. Moore, a structural engineer, has been named director of the Division of Engineering of the U. S. Atomic Energy Commission's New York Operations. He has been with the national atomic energy project since January, 1943, when he joined the engineering division of the Manhattan Engineer District, then in New York City. In June, 1943, Mr. Moore, then a captain in the Corps of Engineers, was transferred to Oak Ridge, Tenn., as assistant operations officer of the $350,000,000 electromagnetic plant for the separation of uranium isotopes. He received his bachelor's degree in civil engineering from the University of Illinois in 1932 and did postgraduate work there in structural engineering. Later he joined the Illinois State Highway Department where he specialized in the design of bridges. He was later on construction work for the U. S. Department of the Interior until 1939 when he joined the U. S. Engineer Department. From 1940 to 1942 he was chief of surveys and assistant chief of operations for the St. Lawrence Seaway Project of that department.

Herbert W. Starick, Dayton, Ohio, city planning director, has been appointed city manager at Middletown, Ohio, replacing Fred J. Schatzmann, who has been acting as city manager for the last several years. Starick was Dayton planning director from 1937 to 1942, and returned in 1944 after serving as senior planning technician for the National Resources Planning Board in Indianapolis and assistant planning director at Cleveland. He is a 1931 civil engineering graduate of the University of Cincinnati.

A. E. Pettitt, who has been an engineer with the city water and sewer department at Durham, N. C., for the last four and a half years, has been named engineer for the Durham Housing Authority, which is planning 600 low-cost housing units. He obtained his civil engineering degree from Clemson College in 1946.

John Collie, junior civil engineer at Raleigh, N. C., has resigned to become assistant city engineer at Fayetteville, N. C. He was graduated from North Carolina State College last March.

Hirschthal & King, consulting engineers are now at 347 Madison Ave., New York 17, N. Y. Before joining Meyer Hirschthal in this firm, Philip King had been supervising engineer for Seelye, Stevenson & Value for several years. Hirschthal was concrete engineer of the D. L. & W. R. R.

Chalkley DuVal, after 25 years in the public works department of Richmond, Va., has been made head of the bureau of engineering and will assist **Jack H. Gould,** public works director. **C. S. Woodson** is principal office engineer.

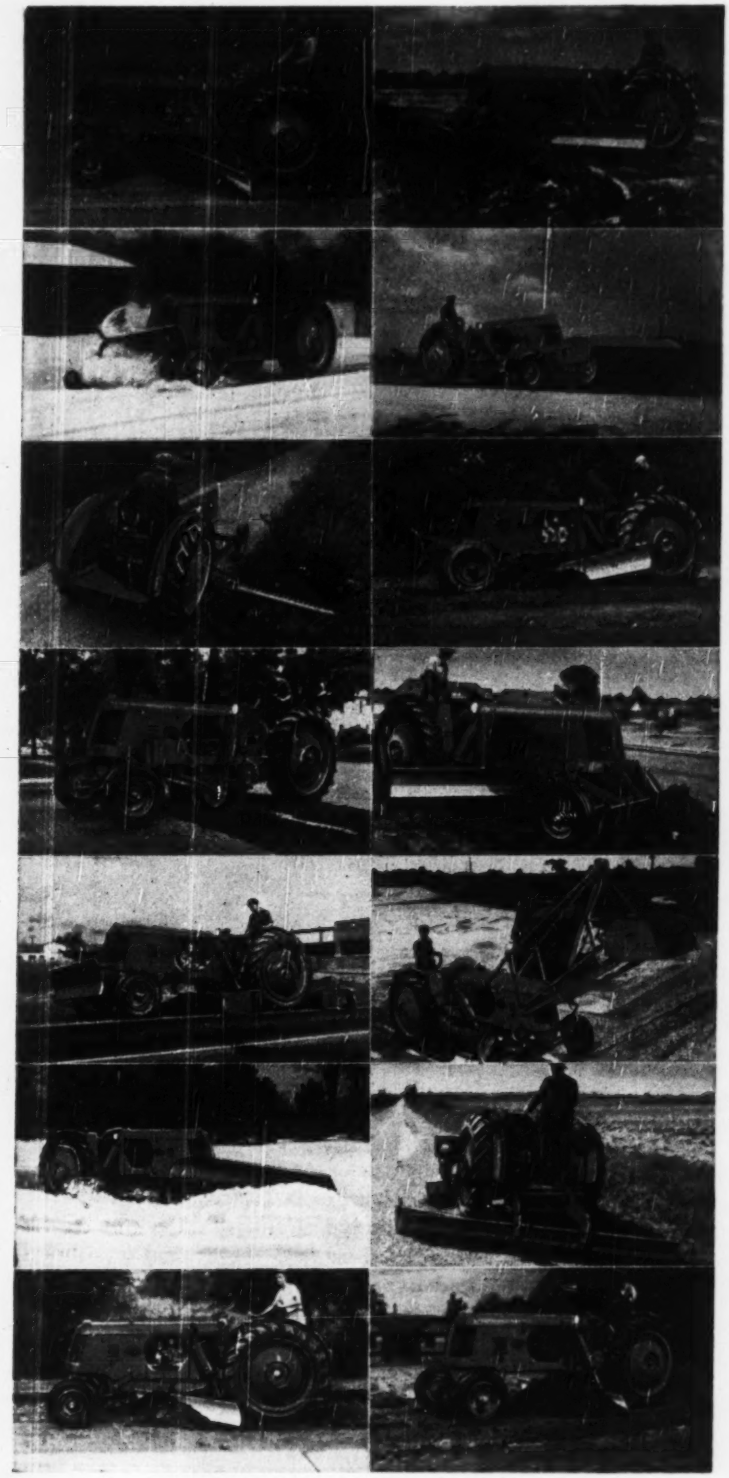
Charles H. Davis has been assigned as resident engineer, Lockwood Greene Engineers, Inc., with field office at The Citadel, Charleston, S. C. in the construction of the new academic building and the new apartment quarters on The Citadel property. He recently left The McPherson Co., industrial engineers of Greenville, where he was a resident engineer in textile construction in Georgia, South Carolina, and Tennessee.

Earl Withycombe, left, has been appointed assistant state highway engineer and Charles E. Waite, right, assistant engineer in charge of the California State Highway Division's personnel and public relations. Withycombe, who was construction engineer, succeeds Ridgway M. Gillis, advanced to deputy state highway engineer, succeeding Fred J. Grumm. Waite succeeds J. G. Standlye, retired.

Ellwood Johnson has retired as superintendent of the District of Columbia sewer division after 32 years of outstanding service. His successor is **Young J. Wright.**

George B. Dean, manager and general executive of the Spartanburg, S. C., Housing Authority, has been appointed city public works director at High Point, N. C., succeeding the late Silas McBee. He obtained his civil engineering degree from Clemson College, and from 1935 to 1940 was employed by the Public Works Administration as assistant engineer in its Richmond, Va., and Atlanta, Ga., offices. He also at one time served as project engineer for the Federal Housing Authority and has been connected with several construction firms.

AWARDS AND COMMENDATIONS—In the first illustration, are shown Rear Admiral J. F. Jelley, left, and Lt. j.g. John J. Healy, CEC, USN, to whom was given the first annual award of the Chief of the Bureau of Yards and Docks for an essay on "Wave Damping Effects At Beaches"; in the second picture, James P. Growdon, chief hydraulic engineer for Aluminum Company of America, is receiving from Col. Charles S. Vance, executive, Western Pennsylvania Military District, the Legion of Merit for exceptionally meritorious conduct "in developing and administering a power program which maintained essential civil services, and at the same time met the needs of our military forces in Italy"; in the third picture, Paul W. Spain, left, assistant to the director of the Atomic Energy Commission's Office of Engineering and Construction, is receiving from AEC Manager Carroll L. Tyler an official commendation for his outstanding work in the development of the Proving Grounds at Eniwetok.



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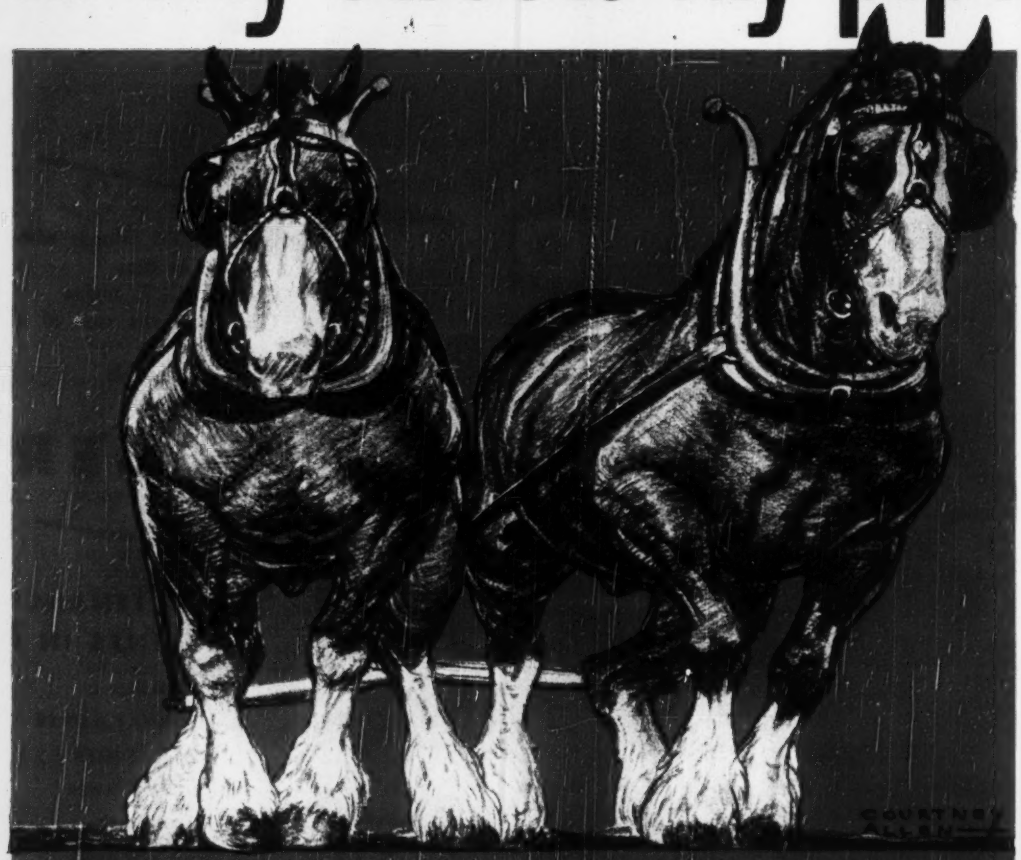

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Known strength factors! Proved resistance to corrosion! These are your only safe and sure guides to long life and low maintenance expense of water, gas and sewer mains laid under costly modern pavements. The four strength factors that pipe must have to survive traffic shocks, heavy external loads, beam stresses and severe working pressures are listed on the page opposite. *No pipe that is deficient in any of these strength factors should ever be laid in paved streets of cities, towns and villages.* Cast iron water and gas mains, laid over a century ago, are serving in the streets of 30 or more cities in North America. These attested service records prove that cast iron pipe not only assures you of effective resistance to corrosion but all the strength factors of long life and economy, as well.

known for STRENGTH

No pipe that is deficient in any of the following strength factors should ever be laid under paved streets.

CRUSHING STRENGTH

The ability of cast iron pipe to withstand external loads imposed by heavy fill and unusual traffic loads is proved by the Ring Compression Test. Standard 6-inch cast iron pipe withstands a crushing weight of more than 14,000 lbs. per foot.

BEAM STRENGTH

When cast iron pipe is subjected to beam stress caused by soil settlement, or disturbance of soil by other utilities, or resting on an obstruction, tests prove that standard 6-inch cast iron pipe in 10-foot span sustains a load of 15,000 lbs.

SHOCK STRENGTH

The toughness of cast iron pipe which enables it to withstand impact and traffic shocks, as well as the hazards in handling, is demonstrated by the Impact Test. While under hydrostatic pressure and the heavy blows from a 50 pound hammer, standard 6-inch cast iron pipe does not crack until the hammer is dropped 6 times *on the same spot* from progressively increased heights of 6 inches.

BURSTING STRENGTH

In full length bursting tests standard 6-inch cast iron pipe withstands more than 2500 lbs. per square inch internal hydrostatic pressure, which proves ample ability to resist water-hammer or unusual working pressures.

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EDUCATION and RESEARCH

Study building methods, construction materials

A score of research investigations now in progress at Southwest Research Institute, San Antonio, Tex., give promise of contributions of both methods and materials to the construction industry, institute officials say.

New methods of building construction and soil stabilization, the development of design criteria for concrete slabs, production of lightweight aggregates from unconventional materials, and new methods of drilling through extremely hard rock formations are some of the programs under way.

Directed by Harold Vagtborg, formerly director of the Armour Foundation, the institute recently was instrumental in the development of the Youtz-Slick method of pouring slabs on the ground and raising them hydraulically for use as floors and roofs of industrial buildings.

Carried out under direction of the institute's Division of Building Construction Technology and Fire Technology, the current investigations include: A basic study of strength and stability of concrete foundation slabs for house construction. This includes investigation of the heaving effect of soils in many areas that cause undue stresses, which in turn result in slab deformation and damage. The staff is making a comprehensive analysis of the major factors influencing slab stability and strength with the objective of developing stronger slabs in keeping with present costs.

Waste disposal, particularly that connected with manufacturing operations, is also under study. One recent development in this line was a study for the Celanese Corporation, results of which are available to others. Of particular importance in this study is the comprehensive material on biological oxygen demand of many organic compounds, and performance of solar and lagooning methods.

The development of a hydraulically operated percussion drilling tool, capable of rapid penetration through hard formations, is also under development. Although this drilling system was conceived specifically for oil field operations, engineers feel that valuable applications may be made in the construction industry. As applied to conventional drilling rigs, the drill is operated by the hydraulic energy of the mud column while simultaneously being carried on and rotated by the drill pipe.

Grads wish schools had emphasized construction

More emphasis on construction—estimating costs, planning plant and managing jobs—is a definite need in present civil engineering college curricula. That's the consensus of opinions of over 300 young civil engineers polled recently.

Greater accent on contracts, specifications, report writing, drafting, speaking and economics, would also have stood the young civil engineers polled in good stead in finding (and keeping) their first positions. Courses listed as overemphasized in college (as judged by their usefulness in the early years of practice) include advanced mathematics, railroad, geodetic surveying and general chemistry.

Questionnaires were sent out by the Junior Branch of ASCE's Metropolitan Section to its membership. A 30% response stressed the useful and practical as wanting in engineering educations. Respondents represent some 56 engineering schools—mostly in the Northeast.

The theoretical was not discounted; information on new developments in theory is wanted, but the best way to teach it is by its emphasizing practical application, according to those queried.

Little doubt was left by answers to the much discussed "professional basis," a two or three-year general course followed by two or three years of specialization in engineering subjects. Over 70% said they thought four years not enough, five or six would be better. Desirability of a broader background, based on the humanities, and more specialized engineering study were reasons given. It was felt the increased length of time in preparation would keep some of those not suited out of the profession. The adverse effect of keeping out many well suited by boosting duration (and thereby, cost) of engineering education was also pointed out.

◆

Oppose merger—The New Jersey State Board of Education has turned down a proposal for the combination of the Rutgers engineering college and the Newark College of Engineering. John H. Bosshart, commissioner of education, said that such a merger would yield no appreciable saving, but he asserted at the same time that the demand for engineers is bound to increase and that the state should plan to provide increased facilities for engineering education.

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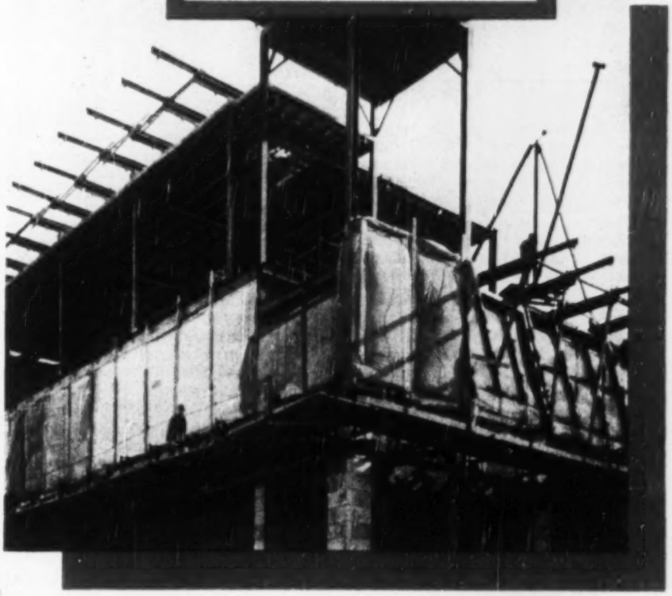

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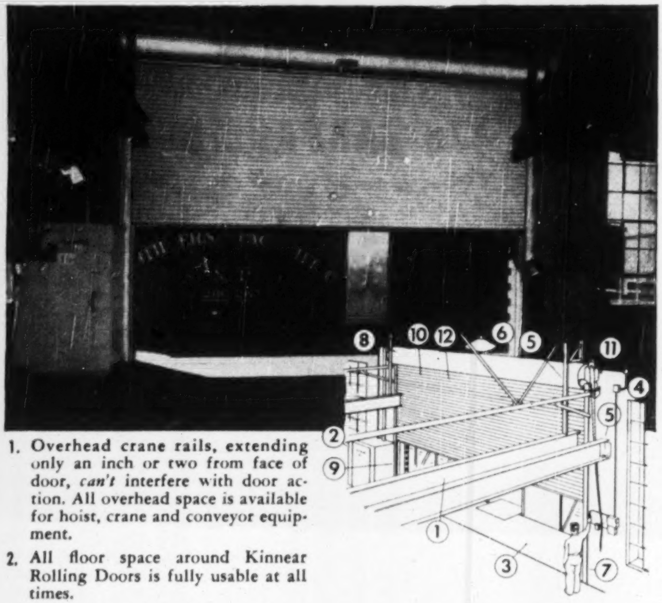

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MEETINGS

The North Carolina League of Municipalities has elected Mayor Ben H. Cone of Greensboro president succeeding Mayor J. Ray Shute of Monroe. Other new officers are: City Manager Roy L. Williamson of Rocky Mount, first vice-president; Mayor Dan Edwards of Durham, second vice-president; and Major J. W. Hoffler of Wallace, third vice-president. Elected directors were: Mayor S. A. Twiford of Elizabeth City, Mayor George W. Dill, Jr., of Morehead City, City Manager R. H. Hamilton of Carolina Beach, City Manager Zeno Hollowell of Goldsboro, City Manager J. Weldon Weir of Asheville, City Manager H. L. Burdette of Hickory, Mayor J. A. Peeler of Salisbury, Mayor Gordon H. Winkler of Boone, Mayor P. D. Snipes of Raleigh, Mayor Victor Shaw of Charlotte, Mayor F. R. Keith of St. Pauls, and Town Clerk, J. A. McDowell of Scotland Neck.

The League has approved in principle the recent report of the State-Municipal Road Commission recommending that the State Highway Department take over the responsibility of the construction and maintenance of city streets, and appointed a committee to work with a similar committee from the State Highway Commission and the Institute of Government at Chapel Hill, N. C., drafting bills to be presented to the State Legislature.

The League also voted to seek legislation from the next Legislature authorizing cities to participate in slum clearance under the Federal Housing program; to promote legislation to permit cities over 5,000 population to establish minimum housing standards for future construction only; and to request passage of an act authorizing cities to construct and operate off-street parking lots and buildings through the issuance of revenue-type bonds.

John W. Johnson, Washington, D. C., contractor, has been elected president of the Capitol District Council, Painting and Decorating Contractors of America. The new president heads his own contracting firm and he succeeds Jack I. Bender of Washington. Capitol District Council is composed of more than 300 contractors in the District of Columbia, Maryland, Virginia, Delaware, and West Virginia. Other officers elected were: Hugh W. Blackwell of Wilmington, Del.; John Hazzard of Baltimore; F. T. Shaw of Norfolk and J. R. Temple of Charleston, W. Va., all vice-president and C. A. Schmick, Jr. of Baltimore, secretary-treasurer.

The Western Piedmqnt Water and Sewage Plant Operators Association has been formed with Ernest Martin, chief operator of the Hickory, N. C., water plant, as chairman, and G. E. Hughey, sanitary engineer for Statesville, as secretary.

John W. Graham, Jr., assistant to the dean of the College of Engineering and Science and assistant professor of civil engineering at Carnegie Institute of Technology, has been elected president of the Pittsburgh chapter of the Pennsylvania Society of Professional Engineers. Professor Graham received a Bachelor of Civil Engineering degree from Ohio State University in 1939, Civil Engineer from Princeton in 1940, and Doctor of Science from Carnegie in 1950.

CALENDAR

Highway Research Board, National Research Council, annual meeting, Washington, D. C., Jan. 8-12.

American Society of Photogrammetry, annual meeting, Shoreham Hotel, Washington, D. C., Jan. 10-12.

N. Y. Section AWWA, luncheon meeting, Park-Sheraton Hotel, New York City, Jan. 16.

Louisiana Engineering Society, St. Charles Hotel, New Orleans, Jan. 18-20.

Industry—College Conference, Case Institute of Technology, Cleveland, Ohio, Jan. 20.

Canadian Construction Association, Chateau Frontenac, Quebec, Ont., Jan. 21-24.

National Association of Home Builders, annual convention and exposition, Stevens and Congress Hotels, Chicago, Ill., Jan. 21-25.

Conference, Wisconsin County Highway Commissioners and County Highway Committee Members Association, Milwaukee, Wis., Jan. 23-25.

Third California Conference on Street and Highway Problems, University of California, Berkeley, Jan. 24-26.

Associated Equipment Distributors, annual meeting, Stevens Hotel, Chicago, Ill., Jan. 28-Feb. 1.

Midwinter Housing Conference, S. W. Research Institute's division of Housing and Construction Technology, Statler Hotel, Washington, D. C., Feb. 13-14.

Illinois Annual Conference on Highway Engineering, Urbana, Ill., Feb. 20-22.

American Concrete Institute, St. Francis Hotel, San Francisco, Calif. Feb. 20-24.

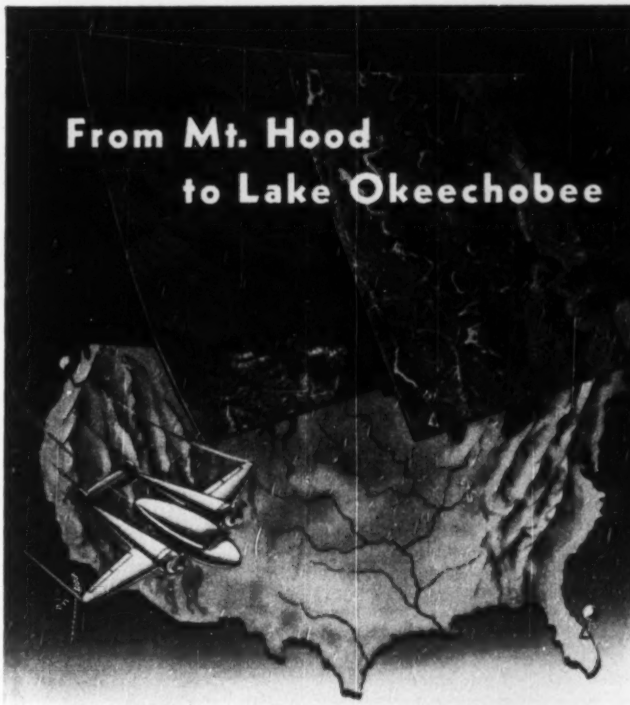
Industrial Waste Conference, Purdue University, La Fayette, Ind., Feb. 21-23.

American Road Builders Association, Schroeder Hotel, Milwaukee, Wis., March 12-14.

American Railway Engineering Association, Chicago, Ill., March 13-15.

N. J. Sewage and Industrial Wastes Association, Haddon Hall Hotel, Atlantic City, N. J., March 14-16.

N. Y. State Association of Highway Engineers, Rochester, N. Y., March 28-30.



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OBITUARY

Charles H. Nichols, 80, of Nichols, Conn., a retired consulting civil engineer, died in Bridgeport, Conn., Dec. 2. He was graduated from Sheffield Scientific School at Yale in 1892 and started with the engineering department of the New York, New Haven & Hartford, R.R. Later he practiced as a consultant in New Haven until 1917. In the first World War he was a major of Engineers with the construction division of the Army, and later was a colonel in the reserve. He supervised construction of Camp MacArthur at Waco, Tex.

Albert J. Fearing, 74, retired director of public works at New Rochelle, N. Y., died there Dec. 1. He was an authority on bridge and tunnel construction. An 1898 graduate of M.I.T., he was a designing engineer in the construction of New York's Hudson tubes and was an assistant engineer in construction work for the Long Island R.R., and a supervising engineer in the construction of the Triborough Bridge in the early 30's. After 1940 he helped in the design of the Squirrel Hill vehicular tunnel in Pittsburgh, Pa.

Paul Clark, civil engineer of Seattle, Wash., died there Nov. 28. He was associate engineer and structural plan examiner in the city building department, where he had worked for more than 20 years. A graduate of the University of Washington, he was with the Army Engineers before entering city service.

Edward I. Cantine, 86, former Oregon state highway engineer, died at Portland, Ore., Nov. 23. He was graduated in civil engineering from the University of Illinois in 1887. He had lived in Oregon since 1911 and in 1915 was appointed state highway engineer. During World War II he was inspector of government housing at Portland.

Harry A. Key, 57, since 1927 assistant superintendent of maintenance in the Washington, D. C., highway department, died Nov. 25 in Suitland, Md.

Emmert M. Miller, 84, who surveyed for part of the Santa Fe Railway in the early western expansion and also helped survey for part of the Southern Railway line, died Nov. 24 in Washington, D. C.

A. O. Myer, 71, pioneer in hydroelectric power, died in Hendersonville, N. C., Nov. 20. He constructed the Lake Summit and Turner Shoals dams.

Charles Thomas Broughton, 67, of

the civil engineering firm of Broughton and Torello, Burlingame, Calif., died Nov. 6 in San Mateo, Calif.

William H. Patersen, 53, principal structural engineer of the school section of the California division of architecture, died Nov 11 in Sacramento. He had worked for the division for 25 years, and was president of the Structural Engineers of Central California.

Alexander C. Williams, 61, a civil engineer and Haverford Township, Pa., engineer since 1926, died Nov. 12 at Cynwyd, Pa. He served as the township's director of public works.

Charles M. Shearer, 64, former superintendent of the Fort Wayne District of Indiana Highway Department, died in Fort Wayne Nov. 23. He was Allen County highway supervisor from 1940 until 1942.

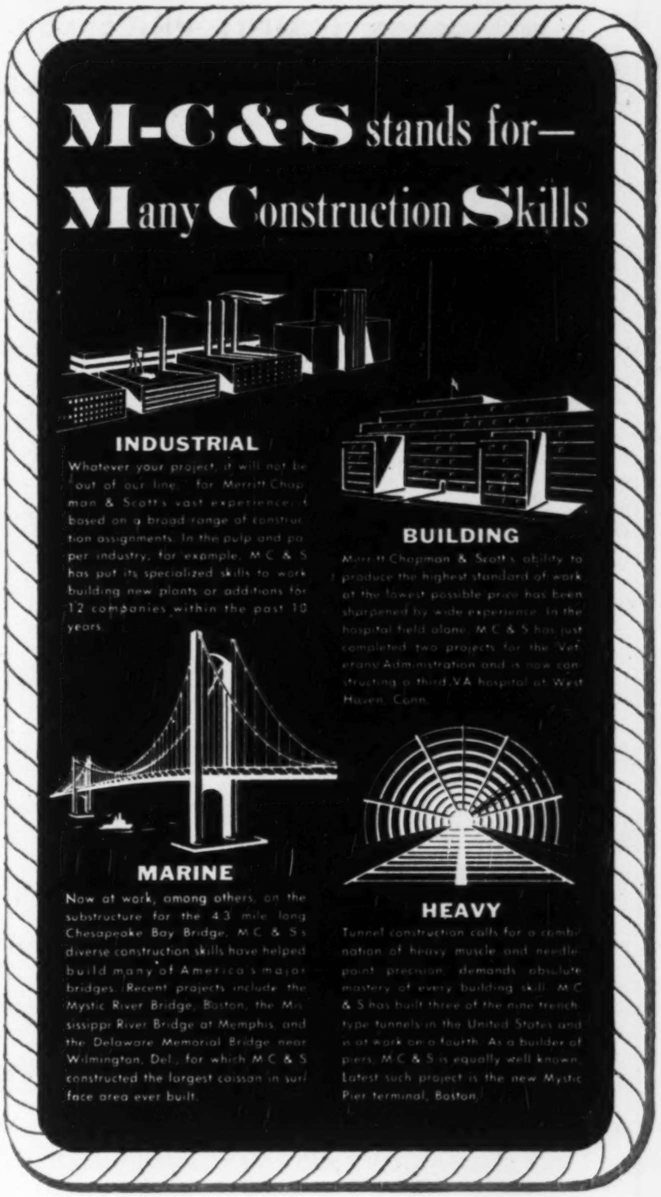
Howard V. Horner, 48, Crawford County engineer at Bucyrus, Ohio since 1945, died Nov. 22. He had been an employee of the Ohio and county highway departments since 1923.

C. S. Saunders, 76, who supervised many of Quebec's hydro-electric installations as general manager of the Shawinigan Engineering Co. Ltd., died Nov. 22 at Montreal.

◆

Big business—Edwin A. Birge of Gastonia, N. C., has been appointed superintendent in charge of the Eastern Division construction program of the Plantation Pipe Line Co., Anderson, S. C. The company is planning a $52,000,000 expansion program, beginning in January, which will more than double its present pipe line system by paralleling the company's existing pipe line with an 18-in. line from Baton Rouge, La., to Bremen, Ga., and a 14-in. line from Bremen to Charlotte, N. C.

Code progress in Milwaukee—In Milwaukee, Wis., the housing committee of the common council has approved 14 of the 40 chapters in the proposed new building code. A 15th chapter, on plumbing and drainage, had been approved and adopted previously. The OK'd subjects were: Title and scope, definitions, enforcement, permits and fees, alterations, occupancy, fire district, miscellaneous regulations, types of construction, live and dead loads, masonry, concrete, steel and iron, and classification of buildings.



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BUILDING

Merritt-Chapman & Scott's ability to produce the highest standard of work at the lowest possible price has been sharpened by wide experience. In the hospital field alone, M-C & S has just completed two projects for the Veterans' Administration and is now constructing a third VA hospital at West Haven, Conn.

MARINE

Now at work, among others, on the substructure for the 4.3 mile long Chesapeake Bay Bridge, M-C & S's diverse construction skills have helped build many of America's major bridges. Recent projects include the Mystic River Bridge, Boston, the Mississippi River Bridge at Memphis, and the Delaware Memorial Bridge near Wilmington, Del., for which M-C & S constructed the largest caisson in surface area ever built.

HEAVY

Tunnel construction calls for a combination of heavy muscle and needle-point precision, demands absolute mastery of every building skill. M-C & S has built three of the nine trench-type tunnels in the United States and is at work on a fourth. As a builder of piers, M-C & S is equally well known. Latest such project is the new Mystic Pier terminal, Boston.

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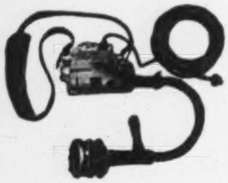

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UNIT PRICES BID BY CONTRACTORS

Chief Joseph Dam on Columbia River

The $25,967,921 low bid for second stage construction on what will be the world's second largest power producer, Chief Joseph Dam, took the contract even though it was 8% above the engineer's estimate. The six bids submitted to the Corps of Engineers in Seattle, Wash., Nov. 9, 1950, were priced 18.3% apart, with the low bid 5% below the next lowest. Lt. Col. J. P. Buehler is the Seattle District Engineer.

This hydroelectric dam, to serve power installations of 20 generators of 64,000-kilowatt capacity each (ENR Sept. 14, p. 136), will be across the Columbia River about 2 miles east of Bridgeport, Wash., and 51 miles below Grand Coulee Dam, the largest power producer.

Work will include care and diversion of water involving pumping, maintenance and removal of the first stage cofferdam as well as design, construction, unwatering, pumping, maintenance and removal of second stage cofferdam; excavation for dam and powerhouse structure; construction of the concrete dam, access towers, spillway bridge and access roads.

Work will start in the first stage cofferdam in April, 1951. The contractor must pay $1,000 for each day's delay on each of three deadlines, 1) powerhouse excavation in area south of 800-foot contour to be completed by June 1, 1952, 2) final powerhouse excavation completed by No. 1, 1952, 3) final completion; Aug. 1, 1955.

The government will furnish the tainter gates and operating machinery; sluice gates, hoists and accessories; stoplog guides and accessories and the main switchgear. Also, at the Jobside, the government will supply thermometers for cold weather temperature control of concreting and all steel sheet piling within the first stage cofferdam with driving templates and surplus steel sheet piling stock-piled.

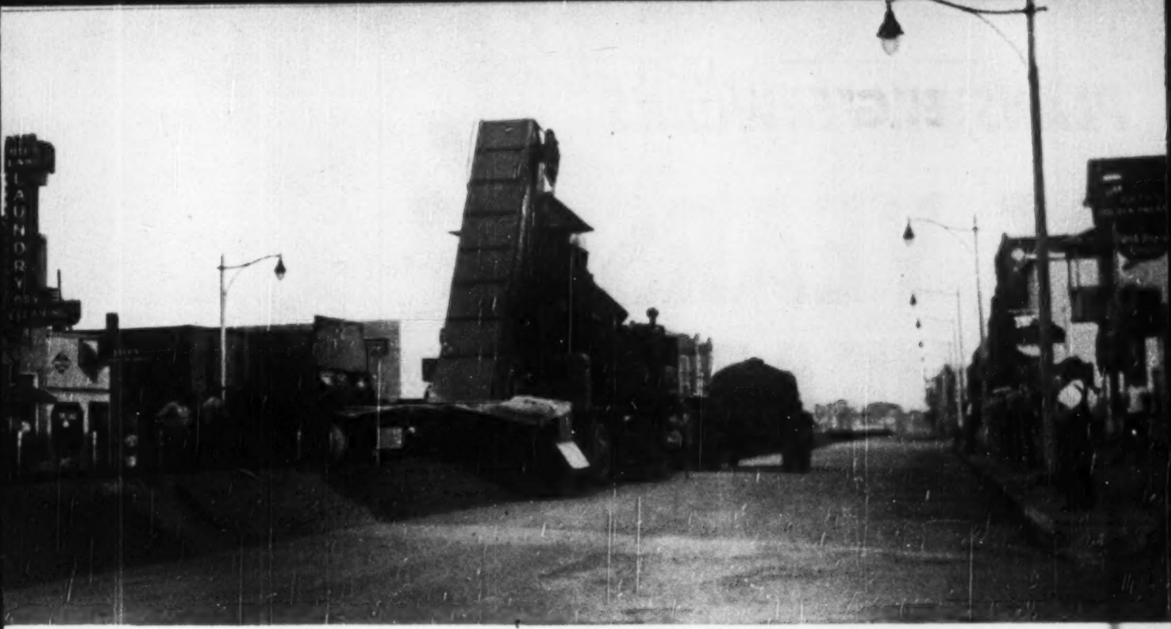
Minimum wage rates are: carpenters, $2.20 an hour; boilermakers, $2.42; concrete laborers and fine grade crews, $1.60; high scalers, $1.90; power equipment operators, $1.75-2.70; truck drivers, $1.60-2.15.

Class A rock excavation consists of all rock excavation other than glacial till and tunnel excavation. Class B is all glacial till that is classified as rock excavation.

Bidders included:

1 The Arundel Corp., Baltimore, Md.; L. E. Dixon Co. San Gabriel, Calif.; Hunkin-Conkey Const. Co., Cleveland; Amer. Pipe & Const. Co., South Gate, Calif.	25,967,921
2 Morrison-Knudsen Co., Inc., General Const. Co., Peter Kiewit Sons' Co., Seattle	27,279,301
6 Kaiser Industries, Inc., Oakland, Calif., Walsh Const. Co., Davenport, Iowa, B. Perini & Sons, Inc., Boston, Mass.	30,711,916
Engineer's estimate	$23,870,907

Items		Quantity	Unit prices 1C	2
1st stage cofdam, maint & rem	ls	....	$430,000	$414,400
Pump capacity furn:	M-GPM	100	3,750	1,375
2nd stg cofdam, const, unwatr, maint, & remov	ls	1,800,000		1,450,400
Excavation				
Rock, Cl A	cy	1,731,000	3.00	3.20
Rock, Cl B	cy	431,000	1.30	1.30
Common, wet	cy	221,000	1.15	1.10
Dry	cy	1,240,000	.82	.70
Tunnel	cy	4,400	53.00	42.25
Compact inperv fill	cy	318,000	.70	.30
Addl roll for compact	roller hr	....	10.00	10.00
Filters	cy	17,800	1.40	2.20
Derrick stone, pl	cy	54,000	1.75	5.90
Cr rock slope protection	cy	14,300	5.00	3.20
Gravel fill	cy	850	6.00	8.80
Mass conc for dam	cy	820,000	8.70	11.00
Concrete for:				
Nonreinf trg walls	cy	60,000	14.50	15.50
Stil bsn slab & baffles	cy	58,000	15.00	11.40
Piers, reinf traing walls	cy	23,000	40.00	25.20
Access tower	cy	375	150.00	110.00
Spilwy br, rdwy, sidewalks	cy	760	150.00	100.00
Relief tunnel				
Sec A-A	cy	2,350	55.00	23.10
Sec B-B	cy	430	45.00	33.50
Prepakt conc	cy	4,070	83.00	38.30
Mineral filler	T	256	42.00	40.50
Intrus aid	lb	17,750	.28	.31
Misc conc	cy	650	160.00	78.78
Portland cmt	bbl	702,000	4.40	4.90
Steel, reinf	lb	4,700,000	.15	.125
Copr watr stops	lb	23,700	1.30	1.50
Anchor bars, drill & grout	lf	84,000	.50	1.85
Drill NX holes	lf	13,000	5.00	7.30
Drill EX holes	lf	9,000	2.30	3.10
Press grout	bag	5,500	2.00	3.25
Min pay: pump connect & pres gr	ea	....	5.00	5.00
Gratings, in pl	lb	45,500	.40	.65
Fer mtl rail, ip	lb	7,500	.80	1.15
Misc fer metal	lb	108,000	.45	.55
Rdway drains	ea	174	33.00	22.00
8" collecter dr	lf	1,400	2.50	5.75
12" relief well casing	lf	760	5.25	14.75
Alum rdwy rail	lf	4,190	12.50	14.50
Well plugs in:				
Roadway	ea	24	26.00	32.50
Spillway	ea	19	82.00	32.50
Misc pipe, fits, vlvs, in pl	lb	28,000	.40	.67
Fer mtl doors	ls		660.00	665.00
Struc carbn st	lb	322,000	.25	.29
Low-alloy struc st	lb	490,000	.18	.23
Sluice gates, htg mach, access, inst & remov	ls	....	160,000	133,000
Taintr gates, oprtg mach, access, ins	ls	....	220,000	270,000
Stop logs, guides, inst	ls	....	55,000	75,000
Elev, in pl	ls	....	27,000	36,000
Sump pump sys & acces	ls	....	10,600	9,900
Standby unit & access	ls	....	10,400	14,700
Access tower appurt	ls	....	5,200	8,250
Insul conductrs	lb	17,700	1.50	1.90
Conduit, fits, boxes	lb	85,300	.70	1.30
Spec box, vol 100 cu in or more	lb	4,600	1.50	1.70
Light fix & wiring devices	ls	....	29,000	23,000
Lgt transformers & panels	ls	....	7,000	5,700
Misc elec equip	ls	....	680.00	1,100
Elec grnd sys	lb	4,200	1.80	1.50
Main switchgear, inst	ls	....	1,000	3,500
De-ice sys	ls	....	20,000	15,626
Cr rock surf, ip	cy	8,870	3.00	3.30
Asph conc pav, ip	sy	20,000	2.50	1.50
Guard rail, ip	lf	5,000	2.80	3.70
18" corg mtl culv pipe, ip	lf	400	4.00	7.10
Asph cmt (86-100 penetration)	T	260	70.00	44.25
Serv of diver	man day	....	175.00	175.00
Line drilling	sf	75,000	1.00	1.50



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25 YEARS AHEAD

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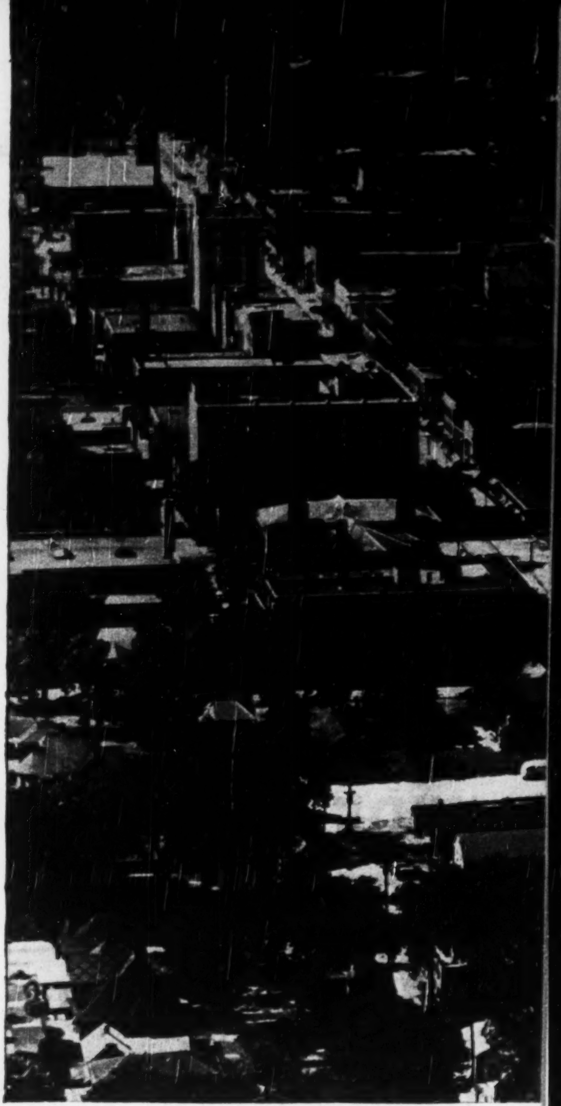

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Keeping right up with its industrial and residential growth, Moline has planned its waterworks program years in advance. Their new pumping station, shown on this page, is designed to handle the city's water requirements for the *next 25 years*, based on an average 1 to 2% increase in water consumption per year.

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If you are planning on expansion or modernization, do as Moline and other cities are doing — take advantage of Allis-Chalmers knowledge and facilities for handling municipal pumping problems. Check with your A-C sales representative today, or write for bulletin 52B6059G, listing complete line of Allis-Chalmers centrifugal pumps.

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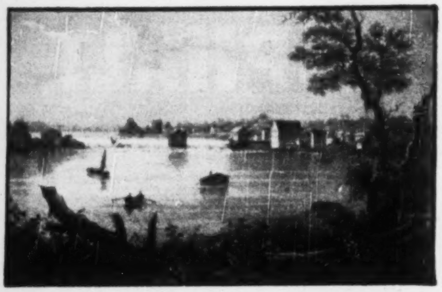
THIS WAS MOLINE 100 YEARS AGO . . .



These were the days when running water was a luxury. In the absence of cast-iron piping, all water flowed through hollowed out elm logs . . . and the water that *did* flow was raw and unfiltered.

BUT LOOK AT TODAY!

Water is plentiful, pure, and efficiently handled. This view shows Moline's new pumping station, using Allis-Chalmers high service pumps. Residents of Moline are proud of the men and firms responsible for the job — Beling Engineering Consultants; M. R. Bechstrom, architect; Priester Construction Company; H. Z. Zimmer, Equipment engineer.

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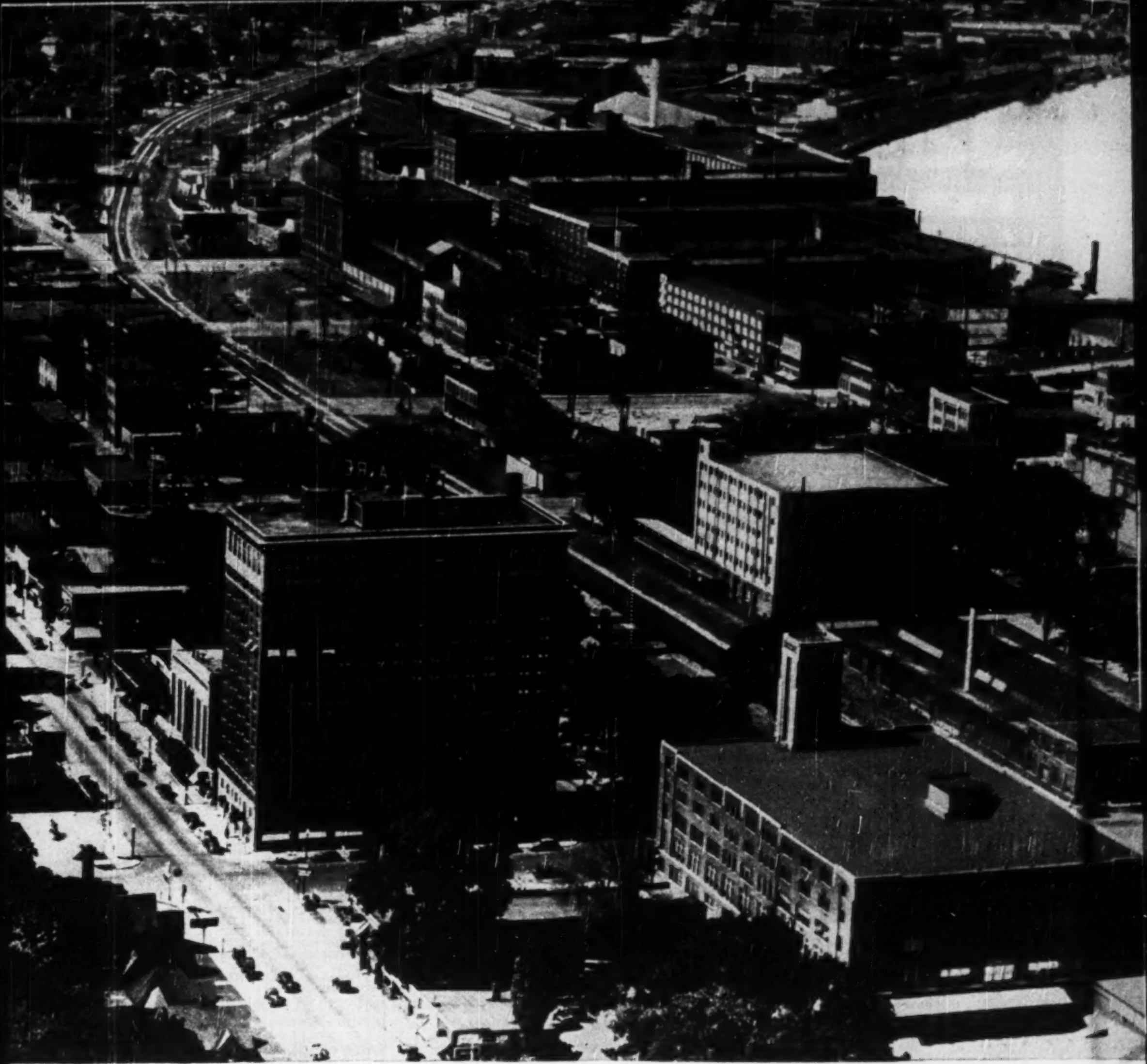

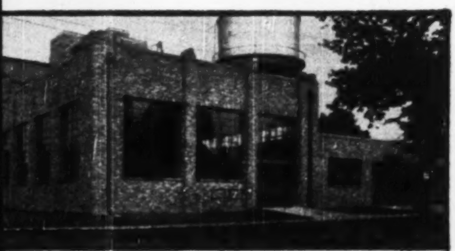

ALLIS-CHALMERS high lift pumps, shown here, take purified water from filtering basins and drive it through city's 100 miles of mains. Pump in the foreground is rated 4 M.G.D., 251 feet total head at 1800 rpm. The other three series pump units are each rated 6 M.G.D. against 266 feet total head at 1200 rpm. Gasoline engines supply standby power for two of these units in case of power failure.

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CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager ***J. A. MAHONEY, Reports*** ***M. R. ROESSLER, Statistics***

WATER SUPPLY

BIDS ASKED

Sask., Regina—B.A. 12/18—City Comrs., 4,929 ft. 36 and 42 in. mechanical sleeve type couplings, for Buffalo Pound Lake Project, for Municipality. A. Shattuck, City Hall, city engr. CD 10/11.

Ind., Michigan City—B.A. 12/19—Dpt. Water Works, 532 Franklin St., water supply sys., mains, tanks, filtration plant expansion. $750,000. Plans deposit $25. Boyd E. Phelps, 1000 Washington St., engr. CD 9/5/44.

† **Tenn., Oak Ridge**—B.A. 12/20—U. S. Atomic Energy Comn., P. O. Box E, Attention: R. J. Dunbar, Engineering Div., concrete roof on filtration plant reservoir, Bldg. No. 1402-5, Inv. No. 401-51-5A. Plans deposit $10

Tex., Fort Worth—B.A. 12/21—City, W. O. Jones, mgr., City Hall, Contr. 2, raw water conduit, Proj. 1949-720. $200,000. Plans deposit $25. Freese & Nichols, 407 Danciger Bldg., engrs. CD 2/4/49.

LOW BIDDERS

Fla., Crestview—City, Nov. 27, WW sys. addns., imprvs., water distr. lines, Part B, from Henderson, Black & Green, Troy, Ala., **$67,558.**

CONTRACTS AWARDED

Tex., Sweetwater—City, water supply line, to H. B. Zachry Co., Box 2570, San Antonio, **$641,153.** Bids 11/20, awarded 11/25. CD 11/27, under LB.

SEWERS, WASTE DISPOSAL

BIDS ASKED

Ga., La Grange—B.A. 12/19—City, sanitary sewer imprvs., incl. 3 mgd treatment plant, 236,000 lin. ft. 8- to 18-in. sewers, etc. Plans deposit $20. Wiedeman & Singleton, P. O. Box 1878, Atlanta, engrs. CD 2/14.

Mich., Detroit—B.A. 12/19—City, P. Wks. Dpt., 104 City Hall, Proj. PW 1415, approx. 2½ mi. sewer in Hessell Ave. from Berg Rd. to Greenview Ave extended. Plans deposit $5. G. R. Thompson, city engr. CD 12/21/44.

N. Y., Croton-On-Hudson—B.A. 12/19—Village, Municipal Bldg., Contr. IV, intercepting sewer; Contr. V, sewage pumping station. Bowe, Albertson & Assoc., 110 William St., New York, Zone 7, engrs.

Pa., Phoenixville—B.A. 12/19—Manager Phoenixville Boro, Council Chamber, sewage treatment works alterations, addns., Contr. 1, structural work; Contr. 2, mechanical work; Contr. 3, electrical work; Contr. 4, heating and ventilating. Plans deposit $40. Albright & Friel, Inc., 121 S. Broad St., Phila., Zone 7, consult. engr. CD 11/16.

† **S. C., Dupont**—B.A. 12/19—At office Capt. W. T. Eckberg, officer in Charge of Construction, P.O. Box 365, Naval Base, Charleston, sewerage sys. exten. at Naval Communication Station, NOY 23613, Spec. No. 25961. Extended date. CD 11/14.

Pa., Altoona—B.A. 12/22—Municipal Auth. of Altoona, City Hall, outfall sewer and secondary sewage (Schedule 2) from South Altoona to West Altoona. $150,000. Lewis J. Gwinn, Altoona, engr. CD 10/17/49.

▲ **Ont., Toronto**—B.A. 1/16—City, H. E. McCallum, mayor, City Hall, incinerator, Commissioner St. $1,000,000. CD 8/10/44.

LOW BIDDERS

Fla., Gainesville—City, Part B, sanitary sewer treatment plant from Henry G. Dupree, 1931 Hendricks Ave., Jacksonville, Zone 7, **$637,808**; Part C, gravity sewers lines, from J. E. McCrary & Co., 22 Marietta St. Bl., Atlanta, Ga., **$152,921.** CD 10/30.

▲ **Mich., Saginaw**—City, R. A. Benway, 104 City Hall, Nov. 28, sewage disposal plant, treatment facilities, from Mancini-Miller-Thompson Constr. Co., 23170 Schoenher St., East Detroit, **$1,821,976.** CD 10/25.

CONTRACTS AWARDED

▲ **Ill., Wood River**—City, Wm. R. Stoneman, mayor, and E. P. Howard, city clk., Wood River, construct Wood River Relief and lateral sewers, incl. 83,275 ft. 2- to 84-in. sewers, 3,056 ft. culvert pipe, lift station, rein.-con. outfall at Mississippi River, etc., to Madison Constr. Co., Swarz St., Edwardswille, **$1,771,452.** Est. $1,200,000. Bids 8/21, awarded 11/20. CD 7/12.

Okla., Oklahoma City—City, City Hall, Zone 2, storm sewer lines in northeastern portion city, to Banta Constr. Co., 1647 W. Main St., Zone 3, **$690,581.** Est. $710,000. Bids 11/21, awarded 11/28. CD 11/27.

Man., Winnipeg—Greater Winnipeg Sanitary Dist., 185 King St., sewage pump. station, to Henry Borger & Son Ltd., 590 Pembina Hy. Approx. **$136,203.** CD 6/6/47.

Ont., Tillsonburg—Municipality, sewers, to Fullerton Constr. Co. Ltd., 843 Central Ave., Windsor, **$50,000.** Awarded 9/29. McLaren & Assocs., 705 Yonge St., Toronto, engrs.

Que., Pointe Aux Trembles—Town, P. Trudeau, secy., sewers, to Adelard Boisvert, 6000 3 Ave., Rosemount, **$77,804.** J. N. Langelier, 10 St. James St. W., Montreal, engr. CD 10/25.

BRIDGES

LOW BIDDERS

California—State Div. Hys., Los Angeles, Nov. 24, 5 rein.-con. bridges for overcrossings and grading surf., etc. Harbor Freeway at 5 and 6 Sts., Los Angeles Co., from Winston Bros. Co., Monrovia, **$956,067.** CD 10/31.

▲ **Florida**—State Rd. Dpt., Seminole Hotel, Jacksonville, Nov. 30, substructure, Part A, for John E. Mathews Bridge over St. Johns River between Jacksonville and Arlington, Duval Co., from Merritt-Chapman & Scott Corp., 17 Battery Pl., New York, N. Y., **$3,588,959;** superstructure, Part B, from Bethlehem Steel Co., E. 3 St., Bethlehem, Pa., **$7,376,712.** CD 11/6.

Illinois—State Div. Hys., Springfield, rejected bids Oct. 20 building 1 bridge, widn. 1 bridge and 1 culvert exten., Ill. Rte. 37, Franklin and Williamson Counties, L.B. **$122,976;** widn. 4 bridges and building 2 culverts U. S. Route 50, Marion Co., L.B. **$80,793;** widn. 1 bridge on Ill. Route 1, Massac Co., L.B. **$67,820.** CD 10/24, under LB.

† **Maryland**—At office H. J. Spelman, div. engr. Bureau P. Rds., Dpt. Commerce, 1440 Columbia Pike, Arlington, Va., Nov. 17, rein.-con. structure approaches, twin spans 0.067 mi., Proj. 1H2, Anne Arundel Co., from Brooklyn Eng. Corp., 1100 E. 25 St., Baltimore, Zone 18, **$518,296.** CD 10/23.

New Jersey and Pennsylvania—Delaware River Joint Toll Bridge Comn., 526 Broad St. Bank Bldg., Trenton 8, N. J., received no bids Nov. 16, administration bldg. and toll collection facilities for Delaware River Joint Toll Bridge Comn. in Morrisville, Pa. **$500,000.** CD 10/19.

Virginia—State Hy. Dpt., Richmond Nov. 29, 607 ft. bridge over Jackson River, U. S. 60 between Covington and Clifton Forge, Alleghany Co., from McDowell & Wood, 1308 Main St. W., Salem, **$500,628.** CD 11/6.

CONTRACTS AWARDED

Indiana—State Hy. Comn., Indianapolis, 3 span 100 ft. rein.-con girder (twin structures) over Northcote Ave., and 7 span 280 ft. steel beam, rein.-con. girder over C. & O. and Erie Rys.; Hammond, Lake Co., to Arcole Midwest Corp., Evanston, Ill., **$693,770.** Est $810,963. Bids 10/17, awarded 11/14 CD 10/20, under LB.

▲ **New Jersey**—New Jersey Turnpike Auth., Trenton, Contr. 45B superstructures of Oak Island Viaduct and Turnpike bridge over Delancy St., Newark, Essex Co., to Poirier & McLane Corp., 33 W. 42 St., New York, N. Y., **$1,015,300.** Bids 11/28, awarded 12/4. CD 12/4, under LB.

▲ **New Jersey**—New Jersey Turnpike Auth., 65 Prospect St., Trenton, Contr. 46, substructure and superstructure Overpeck Creek Causeway, constr. steel sheet piling cells and timber bulkheads on side of approach embankments, embankment constr. and other incidental work in connection with N. J. Turnpike, Bergen Co., to Union Building & Constr. Corp., 631 Main Ave., Passaic, **$1,324,935.** Bids 11/21, awarded 12/14. CD 11/27, under LB.

Washington—State Hy. Dpt., Olympia, rein.-con. girder bridge on Primary State Hy. 1, under crossing at junction S.S.H. No. 1 R, F.A.P. No. FI-001-9, Cowlitz Co., to N. Fiorito Co., 844 W. 48 St., Seattle, **$86,471.** Bids 11/28, awarded 11/8. CD 11/15.

Washington—State Hy. Dpt., Olympia, steel girder bridge over Kettle River, F.A.S. S-0983 (1), Toroda, Ferry Co., to Hunt & Willett Inc., Brewster, **$78,013.** Bids 11/28. CD 10/31, under LB.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Latin America
Public Buildings
Commercial Buildings
Industrial Buildings
Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
B.A.	Bids Asked
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

STREETS AND ROADS

BIDS ASKED

† **Illinois**—B.A. about 12/19—U. S. Eng., 834 U. S. Court and Custom House, St. Louis 1, Mo., road surfacing on levee, Proj. Item III-C Prairie Du Rocher and vicinity (Edgar Lakes and Prairie Du Rocher and Modoc Drainage and Levee Districts), Randolph Co., CIVENG—23 065-51-35.

LOW BIDDERS

Delaware—State Hy. Dpt., Dover, Nov. 29, b. conc. divided hy. 4.914 Jacob's School to one mile south of Greenwood, Contr. 1007, Fed. Aid Proj. F-SF-106 (7), Sussex Co., from Standard Bitulithic Co., foot of Brill St., Newark, N. J., **$833,703.** CD 11/10.

New Jersey—New Jersey Turnpike Auth., Trenton, Contr. 68, grading, area drainage for Service Areas 10-N and 10-S on both sides of turnpike between Sta. 456 and Sta. 485, Sect. 5, constr. 1,400 ft. sewer line and fully equipped temporary sewage lift station together with appurtenant work, Woodbridge Twp., Essex Co., to Peter W. Kero Co., 284 Willow Ave., Lyndhurst, **$543,290.** Bids 11/10, awarded 11/24. CD 11/16; under LB.

New Jersey—State Hy. Dpt., Trenton, Nov. 28, grading 1.922 mi. Route S49 Sect. 6, Wildwood Blvd. to Grassy Sound Bridge Approach, Middle and Lower Twps., Cape May Co., from George M. Brewster & Sons, 275 W. Fort Lee Rd., Bogota, **$332,906;** constr. 1.183 mi. White Horse Ave. and S. Olden Ave. storm drain from S. Broad St. to Maple Shade School and from White Horse Ave. to Maddock Ave. Hamilton Twp., F.A.P. Proj. S-170(4) and S130 (1), Mercer Co.; from Mutual Contg. Co., 202 1 Ave., Atlantic Highlands, **$152,793.** CD 11/10.

New York—Bureau Contracts & Accounts, Albany, 2 grade separation structures, traffic interchange on Ontario Thruway, near village of Liverpool, Onondaga Co., to Arute Bros., Inc., 560 S. Main St., New Britain, Conn., **$842,277.** Bids 11/1. CD 11/3, under LB.

Virginia—State Hy. Dpt., Richmond, Nov. 29, macad. wid'n. 0.56 mi. U. S. 11 at Pulaski, Pulaski Co., from Pendleton Constr. Corp., Wytheville, **$147,078*****c. conc. 4 mi. U. S. 58, east of Courtland, Southampton Co., from Bowe Contg. Co., Inc., Augusta, Ga., **$283,119*****hard surf. 2.92 mi. Secondary Routes 607 and 670, between Birchleaf and Route 600, Dickenson Co., from John A. Archer & Son, Wytheville, **$59,884*****hard surf. and bridge 6.9 mi. Secondary Route 624, south of Milwood, Clarke and Warrent Counties, from R. W. Mitchell Co., Winchester, **$121,718.** CD 11/6.

CONTRACTS AWARDED

▲ **California**—State Div. Hys., Los Angeles, c. conc. on cement treated sub-grade etc. 2 grade separation structures, one pedestrian crossing to provide 6-lane divided freeway 1.1 mi. Santa Ana Freeway between Eastman Ave. and 0.1 mi. west of Atlantic Blvd., Los Angeles Co., to Winston Bros. Co., Monrovia, **$1,112,920;** furnish, place imported base material, applying bit. 0.4 mi. between 8.8 and 8.2 mi. north of Rte. 26 in Dry Morongo Canyon, Riverside Co., to R. S. Crow, 1234 Rosemead Blvd., ElMonte, **$617,931.** Bids 11/16. CD 11/24, under LB.

Idaho—State Hy. Dpt., Boise, reconstr. roadbed, plant mix surf. boulevard, from Morrison-Knudsen Co., 319 Broadway, Boise, **$125,007.** Est. $116,000.

Mississippi—State Hy. Comn., Jackson, bit. surf. 7 mi. Hy. 48, Pike and Walthall Counties, to Cobb Bros. Constr. Co., Citizen Bank Bldg., Meridian, **$122,385;** surf. 4 mi. State Hy. 8 between Grenada and Calhoun City, S.P. 8-1524 (2), Contr. I, Calhoun Co., and grading, bridges, double bit. surf. tr. 12.506 mi. State Hy. 7 between U.S. 51 and Coffeeville, S.P. 7-1525 (1), Grenada and Yalobusha Counties, to

(Continued on page 74)

Olean Gravel Corporation
Saves $600.00
Per J&L Wire Rope Installation

J&L STEEL

This Sauerman excavator is dragging aggregate from the lake bottom 85 feet below the water level. The long service life of the J&L Wire Rope track line is saving Olean more than $600.00 every 10 months.

J&L Wire Rope Track Cables Last 4 Months Longer Than Any Other Brand Tried

Here's a report on J&L Wire Rope from the Olean Gravel Co. It's a story about results—results that can be measured in cash.

Olean Gravel Corporation reports that by using J&L Wire Rope for track cable on a Sauerman excavator more than $600.00 are saved per installation.

Olean has been dredging gravel from a glacial delta deposit near Machias, New York, for more than twenty years. Water level was reached long ago and at present the aggregate is being dragged to a depth of 85 feet below water level. The total load on the track cable is over six tons and it is under stress at a sharp angle when the bucket is on the lake bottom. It's a tough application.

Olean has tried four brands of wire rope. Average service life was six months. Then on June 27, 1947 the company installed its first J&L Wire Rope track cable. It wasn't till 11 operation months later that a second J&L wire rope had to be installed. This time the service record showed 9 operating months.

The cost of a track cable on this rig runs to more than $900.00. Since the J&L Wire Ropes lasted an average of 4 months longer than the best brand previously used, Olean saved more than $600.00 on each J&L wire rope installed.

In addition costs for labor and lost production when changing cables have been reduced 40% because of J&L Wire Rope's 4 months longer service life.

It's no wonder that Olean Gravel Corporation has standardized on J&L Wire Rope for tension lines, inhaul cable and various applications on clam shells at the operating site.

If J&L Wire Rope can save money for Olean Gravel Corporation, the chances are it can do a job for you, too. Why not write in for a copy of our handbook, "Wire Rope is a Machine"? It's written for the operating man and gives profitable information on J&L Wire Rope and its applications. Better still contact your nearest J&L Wire Rope representative.

Jones & Laughlin Steel Corporation
428 Jones & Laughlin Building
Pittsburgh 30, Pa.

I am interested in cutting maintenance costs with J&L Wire Rope.

Please send me a free copy of your handbook, "Wire Rope is a Machine."

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Company____________________

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JONES & LAUGHLIN STEEL CORPORATION

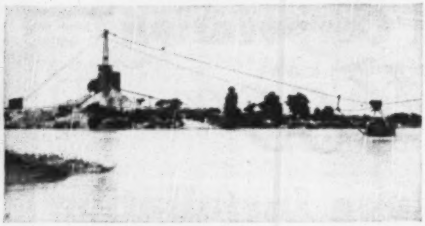
From its own raw materials, J&L manufactures a full line of carbon steel products, as well as certain products in OTISCOLOY *and* JALLOY *(hi-tensile steels).*

PRINCIPAL PRODUCTS: HOT ROLLED AND COLD FINISHED BARS AND SHAPES • STRUCTURAL SHAPES • HOT AND COLD ROLLED STRIP AND SHEETS • TUBULAR, WIRE AND TIN MILL PRODUCTS • "PRECISIONBILT" WIRE ROPE • COAL CHEMICALS

only a 1 MAN JOB

DIGGING with a

Sauerman Slackline Cableway



For 41 years the Sauerman Slackline Cableway has been the favored machine of the sand and gravel industry for wet pit excavation. It has no equal for low cost results in digging a large, deep pit and moving material in the same operation direct to top of plant or surge pile. The operator's job is easy and maintenance is simple. With occasional replacement of a few parts, a Sauerman machine will work at top capacity for many years and return its owner big profits.

STORY BEHIND THE PICTURE

The gravel plant of Louis Marsack & Sons, Mt. Clemens, Mich., offers a typical example of how the Sauerman Slackline Cableway enables its owner to build up a profitable business on a modest investment. The Marsack firm has for years been one of the leading suppliers to the Detroit market and all of its pit excavation has been handled by Sauerman cableways. The picture shows the present pit, 700 ft. wide by 60 ft. deep, and the 1 cu. yd. Sauerman machine.

Write for new Slackline Cableway catalog.

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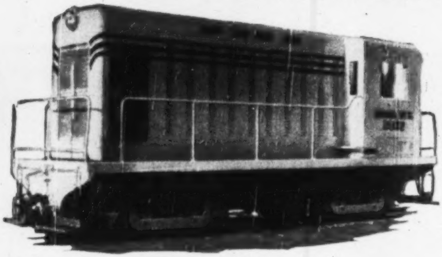

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Since 1900

to Owners of H. K. PORTER LOCOMOTIVES

We have purchased the locomotive business of H. K. Porter Company, Inc., of Pittsburgh, Pa., and wish to assure all owners of H. K. Porter Locomotives that we are prepared to extend friendly and helpful service on repair parts—or duplicate locomotives to H. K. Porter design.

In a Davenport, ample, flexible and responsive power combines with long-lived ruggedness to insure maximum work at minimum cost—through EXTRA years of service. As Davenports are available in many types and sizes, we recommend, for best results, that your locomotive be chosen to FIT the range of work you expect it to do.

Our engineers will be glad to analyze your haulage requirements and submit recommendations—without obligation.

WRITE US TODAY

DAVENPORT LOCOMOTIVE WORKS

A DIVISION OF DAVENPORT BESLER CORPORATION, DAVENPORT, IOWA

ESTABLISHED IN 1900

(Continued from page 72)

Boyd Constr. Co., Columbia, **$192,426** and **$590,829** respectively. Grand total $905,640. Bids 11/28. CD 11/20.

Mo., Kansas City—City Park Bd., City Hall, Zone 6, grading for exten. of Van Brunt Blvd. from 31 to 35 Sts., to Geo. Bennett Constr. Co., 1520 Central St., Kansas City, Kan., **$181,000.** Bids 10/24, awarded 11/9. CD 10/19.

New York—Bureau Contracts & Accounts, Albany, reconstruct 3.53 mi. Route 10 between Delhi and Stamford, Delaware Co., to Torrington Constr. Co., Inc., P.O. Box 336, Torrington, Conn., **$573,793.** Bids 11/1. CD 11/3, under LB.

▲ **Ohio**—State Div. Hys., Columbus, exten. Lakeland Freeway of State Routes 2 and 283, two new bridges parallel to present bridges, 3 intermediary bridges, new pavement, Cuyahoga Co., to National Eng. & Constr. Co., W. 4 and Central Sts., Cleveland, **$1,938,954.** Est. $2,000,000. Bids 11/21, awarded 11/27. CD 11/10.

Pennsylvania—State Hy. Dpt., Harrisburg, c. conc. pavement 18 ft. wide, crushed aggregate base with bit. surf. 16 ft. wide, 2 concrete deck plate girder bridges and drainage excav., 6,949 ft. L. R. 902 (R-1). 32016 (R-2). T. R. 680, from point 3.4 mi. north of Blairsville Boro to point 0.2 mi. north of intersection or Route 32156 from point 3 mi. northeast of Blairsville Boro to point 1½ mi. west of Village of Blacklick, Iniana Co., to M. Bennett & Sons, 19 N. Sixth St., Indiana, **$694,806.** Bids 11/10. CD 11/14, under LB.

Pennsylanvia—State Hy. & Bridge Auth., 506 N. Office Bld., Harrisburg, reconstruct existing pavement with crushed stone base, plain c. conc. base, bit. surf. and rein.-con., incl. traffic dividers and pedestrian islands for a completed width variable from 33 to 66.5 ft., the extens. of an existing pedestrian underpass structure and construct an I-beam bridge, construct divided highway consisting of two 24 ft. lanes of rein.-con. pavement on each side of a concrete or earth divisor incl. construction 2 rein.-con. structures, a railroad overhead structure and exten. an existing structure, construct separated east and west bound traffic lanes consisting of rein.-con. pavement 24 ft. wide, 10,973 ft. L. R. 770 (1), 708 (4). T. R. 11, approach work from west side of North Bridge over Susquehanna River to Camp Hill Boro at 26 St., Cumberland Co., to J. Richard Nissley, Landisville, **$930,371.** Bids 11/10, awarded 11/29. CD 11/14, under LB.

Utah—State Road Comn., State Capitol, Salt Lake City, 2 in. road mixed bit. road surf. 10.978 mi. between Beryl Junction and Enterprise, FASP No. S-305 (1), Washington and Iron Counties, to Strong Co., Springville, **$219,329.** Est. $245,138. Bids 11/21. CD 11/14.

Washington—State Hy. Dpt., Olympia, stockpiling crushed stone and mineral aggregates, Primary State Hys. 7 and 18, Vantage to Quincy, et al, Grant Co., to J. A. Bryant, Spokane, **$61,818.** Bids 11/28, awarded 11/28. CD 11/15.

EARTHWORK, WATERWAYS

BIDS ASKED

† **Colorado**—B.A. 12/19—Bureau Reclamation, Dpt. Interior, Ft. Collins, earthwork, concrete canal lining and structures, Poudre Supply Canal, Windsor Section, Colorado-Big Thompson Proj., Spec. DC-3244. Michael W. Straus, comr.

† **New Jersey**—B.A. 12/20—U. S. Eng., 80 Lafayette St., New York, Zone 13, N. Y., dredging approx. 336,450 cu. yd. all material except ledgerock from Passaic River south of C.R.R. of N. J. Bridge, Essex Co., Serial No. CIVENG-30-075-51-44.

† **North Dakota**—B.A. About 12/21—U. S. Eng., 1217 U. S. Post Office and Custom House, St. Paul 1, Minn., channel snagging, Stage No. 2, Sheyenne River, Cass Co.

† **Louisiana**—B.A. 12/21—U. S. Eng., foot of Prytania St., New Orleans, Zone 9, Lamourie Control Structure consisting gated rein.-con. culvert 10x10 ft. opening, 64 ft. long, on west bank of Bayou Lamourie at intersection with Bayou Boeuf in Rapides Parish, 1 mi. northwest of Lamourie, CIVENG 16-047-51-96.

LOW BIDDERS

† **South Dakota, Nebraska and Iowa**—U. S. Eng., 1709 Jackson St., Omaha 2, Neb., Nov. 10, revetment in or immediately adjacent to Missouri River in Kenslers-Lower Sioux City Bends, Union Co., S. D. Dakota Co., Neb. and approx. 7 mi. upstream from Sioux City, Ia., Inv. No. CIVENG 25-066-51-44, from Connor & Stavely Constr. Co., 1805 Grand St., Kansas City, Mo., **$552,013.** CD 10/24.

† **Washington**—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, cancelled bids to have been opened Nov. 28, levee exten. and bank protection near Foghorn Ditch intake, Methow River, Serial No. CIVENG-45-108-512-26, Project postponed indefinitely. CD 11/16.

CONTRACTS AWARDED

† **Arkansas**—U. S. Eng., P.O. Box 97, Memphis, Tenn., 100,000 units concrete mattress, Helena, to Weymouth Constr. Co., Person Ave., Memphis, 8, Tenn. **$874,850.** Est. $900,000. Bids 11/29, awarded 11/30.

† **Mo., Carthersville**—U. S. Eng., P.O. Box 97, Memphis 1, Tenn., 32,000 unit concrete mattress, to Fordice Constr. Co., Porter Bldg., Memphis 1, Tenn. **$292,576.** Bids 11/29, awarded 11/30.

▲† **Tennessee**—U. S. Eng., P.O. Box 97, Memphis, Zone 1, 120,000 units concrete mattress, Gates Landing, to Wright Contg. Co., 504 25 Ave., Columbus, Ga., **$1,078,680,** est. $1,111,140; 160,000 units concrete mattress for River, Richardson Landing, to Weymouth Constr. Co., Person Ave., Memphis, Zone 8, **$1,330,960,** est. $1,412,000. Bids 11/29, awarded 11/30.

PUBLIC BUILDINGS

BIDS ASKED

N. Y., New York—LIBRARY—B.A. 12/20—Dpt. P. Wks., Municipal Bldg., Zone 7, general contract; plumbing; heating and ventilating; electrical work and lighting for alteration and rehabilitation Harlem Branch Library, 9 W. 124 St., Manhattan Boro, for the New York Public Library. Plans deposit $15.

Que., Quebec City—MARINE STORES—B.A. 12/20—Acting Secy. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., constr. Marine Stores Bldg. Approx. $200,000. Plans deposit $100. G. Brault, c/o owner, archt.

Ark., North Little Rock—HOUSING—12/21—North Little Rock Housing Auth., North Little Rock, erecting 92 dwelling units. Plans deposit $50. Erhart, Eichenbaum & Rauch, Wallace Bldg., Little Rock, archts.

Tex., Sweeney—SCHOOLS—B.A. 12/21—Sweeney Independent School Dist., Sweeney, gymnasium-high school for Negroes, $300,000; 17-room elementary school for Whites, $325,000; Plans deposit $45 each. Donald Barthelme & Assoc., 3106 Brazos St., Houston, archts. CD 11/30.

Ont., Clinton—BARRACK BLOCK—B.A. 1/3—J. D. McCarthy, secy. Canadian Commercial Corp., 70 Lyon St., Ottawa, one 180 main barrack block at R.C.A.F. Station, G19-C10-29. Approx. $325,000. Plans deposit $100.

Calif., Porterville—KITCHEN, etc.—B.A. 1/4—State Div. Architecture, P. Wks. Bldg., Sacramento, rein.-con. kitchen, dining and commissary bldg., boiler plant, electric and mechanical services, 40,000 sq. ft. at Institution for Epileptics. Anson Boyd, State archt. CD 12/9/47.

LOW BIDDERS

▲ **Ky., Louisville**—HOUSING—Municipal Housing Comn., Second and York Sts., Zone 3, Nov. 29, West Housing (Negro) Proj. K 1-6, from Geo. H. Rommel Co., 958 Logan St., Zone 4, **$6,358,177.** CD 11/10.

Mont., Sunburst — SCHOOL, etc. — Sunburst High School Dist., Nov. 18, general contract high school and bus garage, from McKinnon-Decker Constr. Co., 1520 Hauser Blvd., Helena, **$368,698.** CD 11/10.

N. Y., Endwell—HIGH SCHOOL—Bd. Educ., Union Free School Dist. 2, Endwell, Junior High School, from V. J. Smith, Inc., Endicott Ave., Johnson City, **$939,284.** CD 11/13.

▲ **O., Columbus**—SCHOOL—State Dpt. P. Wks., Columbus, Nov. 16, 2 story, 211x211 ft., and 2 story, 90x103 ft., 220x253 ft., brick, concrete, steel school for the blind, from James I. Barnes Constr. Co., 6 Bechtle Ave. Springfield. Approx. **$2,300,000.** CD 10/17.

Pa., Millersville—DORMITORY, etc.—General State Auth., 18 and Herr Sts., Harrisburg, Nov. 29, general contract women's dormitory and dining hall at Millersville State Teachers' College, from Herman Wohlsen's Sons, Lancaster, **$526,370.** CD 11/9.

Pa., Phila.—BARRACKS—General State Auth., 18 and Herr Sts., Harrisburg, Nov. 29, general contract, barracks bldg. for Pennsylvania State Police, 2201 Belmont Ave., from Frank J. Larkin Constr. Co., Inc., 1520 Parrish St., **$364,375.** CD 11/14.

CONTRACTS AWARDED

Mass., Weymouth—SCHOOL—Town, 89 Middle St. E., school, Pearl St., to Farina Bros., Inc., 61 Bridge St., Newton, **$424,000.** Bids 11/1. CD 10/23.

O., Bedford—SCHOOL—Bd. Educ., Bedford, 1 story brick, block school, to Leo W. Schmidt Co., 9920 Granger Rd., Cleveland, **$338,182.** CD 5/15.

▲ **Tex., Phillips**—SCHOOL—Phillips Independent School Dist., Phillips, high school, to Lippert Bros. General Contractors, 2800 N. Santa Fe St., Oklahoma City, Okla., **$1,000,000.** Bids 11/21. CD 10/27.

Ont., Toronto—APARTMENTS—Housing Auth. of Toronto, H. E. McCallum, mayor, City Hall, Apartment Bldgs. 14 and 19, Regent Park Housing, 2 story, 48 suites each, to W. B. Sullivan Constr. Ltd., 30 Bloor St. W., **$647,158.** Bids 11/13, awarded 11/27. CD 11/20, under LB.

▲ **Ont., Toronto**—SCHOOL—North Twp. Collegiate Bd., 5145 Yonge St., Willowdale, composite high school Lawrence Ave. W., to Redfern Constr. Co. Ltd., 88 Laird Dr., Leaside, Approx. **$1,000,000.** CD 11/8, under LB.

COMMERCIAL BUILDINGS

BIDS ASKED

▲ **Ky., Louisville**—DEPARTMENT STORE—B.A. 12/27—Henry A. Marks & Dolph Hartveld, Union Trust Bldg., Cincinnati, O., (selected list bidders) 3 story, bsmnt. department store. $2,000,000. Extended date. J. C. Penney Co., 330 W. 34 St., New York, N. Y., lessee. CD 11/27.

▲ **Alta., Edmonton**—BANK—Bids Asked—Rule, Wynn & Rule, archts., 11422 Jasper Ave., 4 story, frontage 100 ft., structural steel, rein.-con. main branch of bank, Jasper Ave. and 100 St., for Imperial Bank of Canada, Edmonton. $1,000,000. Extended date. CD 9/11.

SOON LETS CONTRACT

Calif., Hanford—HOSPITAL—Sacred Heart Hospital, 1025 N. Douty St., soon lets contract 2 story, bsmnt.,

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The 2-yard MIXERMOBILE is a complete mobile concrete mixing and elevating plant. One mobile unit does all these things:

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Elevates on the job — saves cost of hauling and erecting tower.
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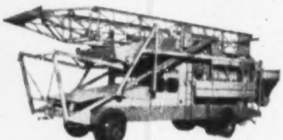

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Class A rein.-con. 28-bed hospital addn. Approx. $300,000. Walter Wagner, 1830 Van Ness Ave., Fresno, archt. CD 3/28/46.

Tex., San Angelo—CHURCH—First Baptist Church, San Angelo, soon lets contract masonry, steel church. $300,000. Wallace & Clemmons, 1911 Division St., Nashville, Tenn., archts.

CONTRACTS AWARDED

Ill., Chicago—BANK—Harris Trust & Savings Bank, 111 W. Monroe St., Zone 3, modification of bank, incl. air-conditioning to Kroeschell Eng. Co., 215 W. Ontario St., Zone 10. **$300,000.** Bids 11/15, awarded 11/24. CD 11/8.

▲ **Ill., Chicago**—APARTMENT—Owner, c/o Erwin G. Fredrick, archt., 225 N. Michigan Ave., Zone 1, 13 story, 188 unit U-shaped apartment, Sheridan Shores Corp., to Welso Constr. Co., 2345 S. Crawford St., Zone 25. **$2,150,000.** Bids 6/20, awarded 11/6. CD 1/26.

▲ **Mo., Lee's Summit**—HOUSING—Marr & Kemp Constr. Co., Warrensburg, 200 homes, Unity Gardens, etc. on 105 acre tract on Hy. 50, ¼ mi. south of Barmister Rd. Owner builds. **$1,900,000.**

Ont., Brantford—OFFICE—Bunnell Hichon Ltd., 78 Dalhousie St., and D. O. Johnson & Co., 138 Dalhousie St., 6 story, 35x120 ft., steel, concrete office, 51 Market St., to Johnson Bros. Co. Ltd., 37 Market St. Approx. **$700,000.** Marani & Morris, 1250 Bay St., Toronto, archts.

Que., Montreal—CHURCH—Roman Catholic Parish of Notre Dame du Foyer, 5175 Des Sorbiers Ave., concrete, steel, stone, brick church, Bellechaise St., T. V. Bernier, 3968 E. Ontario St. Approx **$300,000.** Gascon & Parant, 934 E. Ste. Catherine St., archts. CD 3/29/46.

INDUSTRIAL BUILDINGS

SOON LETS CONTRACT

Ill., Chicago—SUB-STATION—Commonwealth Edison Co., 72 W. Adams St., Zone 3, soon lets contract 1 story, steel, concrete, brick, Sauganash Sub-Station, 6033 N. Crawford Ave. $400,000. Shaw Metz & Dolio, 208 S. La Salle St., Zone 4, archts.

Tenn., Memphis—WAREHOUSE, etc.—Orkin Exterminating Co., Inc., Exchange Bldg., soon lets contract masonry, steel warehouse and office, concrete fdn. $150,000. E. B. Phillips, Exchange Bldg., archt.

Utah, Ogden—WAREHOUSE, etc.—Utah Power & Light Co., Kearns Bldg., Salt Lake City, soon lets contract warehouse and office. Leslie F. Hodgson, 807 Eccles Bldg., archt.

CONTRACTS AWARDED

Calif., Oakland—GARAGE, etc.—Langendorf United Bakeries, 1160 MaAllister St., San Francisco, concrete garage and storage, to J. H. McFarland, 101 Tara St., San Francisco, Approx. **$90,000.**

Idaho, Pocatello—WAREHOUSE—Purity Biscuit Co., 471 W. 5 South St., Salt Lake City, Utah, warehouse, Harrison, King Sts., to Jacobsen Constr. Co., 724 S. 3 East St., Salt Lake City, Utah, Approx. **$150,000.** Ware & McClenahan, Utah Savings & Trust Bldg., Salt Lake City, Utah, archts.

▲ **Ill., Waukegan**—GENERATING PLANT—Public Service Co. of Illinois, 72 W. Adams St., Chicago, Zone 3, superstructure Electric Generating Plant 9, to Bates & Rogers, 600 W. Jackson St., Chicago, Zone 6, Approx. **$12,000,000.** CD 11/1.

Ind., New Albany—FACTORY—Gunnison Homes, Inc., Charleston Rd., general contract 100,000 sq. ft. factory addn., to Erhart Knopf Constr. Co., E. Broadway, Louisville, Ky., **$300,000.** CD 2/17.

Mass., North Abington—COLD STORAGE—Bay State Ice Cream Co., North Abington, cold storage bldg., to Atwood & Co., North Abington, **$100,000,** Atwood Assoc., 687 Boylston St., Boston, archts.

N. Y., Fulton—PLANT—Peter Cailler Kohler Swiss Chocolate Co., Inc., Fulton, Unit 2, 30,000 sq. ft., steel, brick, glass block chocolate plant expansion, to John W. Harris Assoc., Inc., 30 Rockefeller Plaza, New York, Zone 20, **$300,000.** Lathrop Douglass, 518 5 Ave., New York, archt. Guy B. Panero, 420 Lexington Ave., New York, engr.

Tex., San Angelo—STORAGE CENTER—"M" System Store, 124 W. 4 St., masonry, steel warehouse, incl. cold storage unit, concrete slab fdn., own forces. **$92,500.** Est. $80,000. Bids 8/8. CD 8/2.

Man., Winnipeg—WAREHOUSE—Gutta Percha Rubber Ltd., 7 McDermott St., warehouse, to Malcolm Constr. Co. Ltd., 554 Pembina Rd., Winnipeg.

Ont., Cornwall—PLANT—Stormont Cold Storage Co-operative, S. Vandeleur, secy., 1 story, 83x113 ft., rein.-con., cement block cold storage plant, Eleventh St., own forces. **$113,000.** CD 6/19.

Ont., London—PLANT—Empire Brass Mfg. Co. Ltd., Dundas St. E., 1 story, 100x160 ft., steel, brick, concrete plant addn., to McKay-Cocker Constr. Ltd., 233 Dundas St., London, Approx. **$225,000.** CD 11/13.

Ont., Tillsonburg—PLANT—Borden Co. Ltd., 41 John Pound Rd., plant addn., bldg. and 2 milk dryer kilns, roof and storage room to Foundation Co. of Ontario Ltd., 428 Richmond St., London, Est. **$100,000.**

Ont., Toronto—WAREHOUSE, etc.—Cities Service Oil Co. Ltd., 1179 Yonge St., warehouse and oil-blending plant, Fleet and Carlaw Sts., to Bennett-Pratt Ltd., 5 Maple Leaf Dr., Weston, **$200,000.** Awarded 11/28. CD 9/21.

Que., Limoilou—PLANT UNITS—Anglo-Canadian Pulp & Paper Mills Ltd., Limoilou, 75x102 ft. digester house 124 ft. high; 144x188 ft. blow pit, 44 ft. high;

102x180 ft. acid plant all rein.-con., own forces, Approx. **$825,000.** CD 8/23/45.

UNCLASSIFIED

BIDS ASKED

Calif., Del Mar—EXHIBIT—B.A. 12/28—State Div. Architecture, P. Wks. Bldg., Sacramento. 1 story, 106x320 ft., rein.-con. exhibit bldg. for 22nd District Agriculture Assn. Anson Boyd, Sacramento, state archt.

Calif., Turlock—EXHIBIT—B.A. 12/28—State Div. Architecture, P. Wks. Bldg., Sacramento, exhibit bldg. for 38th District Agriculture Assn. Anson Boyd, Sacramento, state archt.

LOW BIDDERS

Calif., Los Angeles—TRANSIT SHED—City Harbor Dpt., City Hall, Nov. 15, steel, concrete transit sheds at Berth 153, from Davies, Keusder & Brown, 4915 Exposition Blvd., **$941,740.** Est. $700,000. CD 10/25.

† **Calif., Inyokern**—RANGE FACILITIES—Dpt. Navy, Inyokern, Nov. 21, Randsburg, Wash test range facilities, from Haddock Engineers Ltd., 1616 S. Greenwood St., Montebello, **$917,833.**

Calif., Riverside—SWIMMING POOL, etc.—City School Dist., 3954 12 St. rejected bid Nov. 9, swimming pool and girls gymnasium, L.B. **$518,000.** CD 11/16, under LB.

▲ **N. Y., Brooklyn** — DC CONNECTIONS, etc. — Bd. Transportation, 250 Hudson St., New York, Zone 13, Nov. 24, furnishing, installing DC connections and associated work for Culver Line, BMT Div. from W. 8 St. to Ditmas Ave., Line B, IND Div. Ditmas Ave. to Seely St., from Utility Electric Co., Inc., 92 Liberty St., New York, Zone 6. **$564,900*****rerouting cables on account of demolition Lexington Ave. Elevated structure, Contr. P-65, from Harry Alexander, Inc., 25 W. 43 St., New York, Zone 18, **$355,281*****circuit breaker house and duct lines for Myrtle Ave. line from Poirier & McLane Corp., 33 W. 42 St., New York, Zone 18. **$185,550.** CD 11/10.

Pa., West Chester—SWIMMING POOL—General State Auth., 18 and Herr Sts., Harrisburg, general contract from M. & L. Constr. Co., Inc., Pennway and Cottman Sts., Phila., **$564,665.** Est. $500,000. CD 11/9.

CONTRACTS AWARDED

Nebraska — RURAL DISTRIBUTION LINES — Panhandle Rural Electric Membership Assn., Alliance, 332.3 mi. rural distr. lines, Arthur, Cherry, Garden, Grant, McPherson and Sheridan Counties, to Cater Electrical Constr. Co., 1016 Baltimore St., Kansas City, Mo., **$404,158.** Bids 11/9. CD 11/1.

South Dakota—RURAL DISTRIBUTION LINES—Grand Electric Co-operative, Bison, 686 mi. rural distr. lines and sys. imprvs., Perkins Co., to Line Builders, Inc., Box 1323, Billings, Mont., **$778,384.** Scott Eng. Co., 10 Second St. S. E., Watertown, engr. CD 6/6.

PROPOSED PROJECTS

WATER SUPPLY

Ill., Rockford—City, new municipal water sys., Love's Park. **$625,000.** Francis Eng. Co., Rockford, engrs. CD 5/31/46.

▲ **Tex., Bellaire**—Harris County Water Control & Imprvt. Dist. 24, Bellaire, WW. **$1,500,000.**

▲ **Tex., Big Spring and Odessa**—Colorado River Municipal Water Dist., c/o R. T. Piner, pres. Bd. Directors, Big Spring, voted bonds Nov. 16, domestic water supply, incl. dam in Scurry Co. water main, lines, pump. plant, etc. **$10,000,000.** Freese & Nichols, 407 Danciger Bldg., Fort Worth, and Forest & Cotton, Praetorian Bldg., Dallas, consult. engrs.

▲ † **Alaska, Fort Richardson**—U.S. Eng., First and Douglas Sts. N.W., Wash. 25, D. C., water supply, **$2,500,000.**

† **Alaska, Whittier**—U.S. Eng., First and Douglas Sts. N.W., Wash. 25, D. C., water supply facilities, **$230,000.**

Ont., Schumacker—Tisdale Twp., V. H. Evans, reeve, South Porcupine, WW exten. from South Porcupine to Schumacher and replacement steel pipes in South Porcupine, **$590,000.** C. S. Anderson, South Porcupine, twp. engr.

SEWERS, WASTE DISPOSAL

Ark., Prescott—City, imprv. water and sewerage sys. (joint project), **$500,000.** Marion L. Crist & Assocs., Union Life Bldg., Little Rock, consult. engrs.

▲ **Ill., Decatur**—Decatur Sanitary Dist., 600 Powers Lane, bond election interceptor sewerage sys. **$2,000,000.** Previous bond election defeated. Warren & Van Praag, 253 S. Park St., engrs. CD 9/8.

Ill., Morton—Village, Village Hall, sewage disposal works, **$250,000.** Crenshaw & Jost, 512 Court St., Pekin, consult. engrs. **(Correction—engineers' address).** CD 11/2.

Ill., Pekin—City, City Hall, addnl. sewers, **$500,000.** Crenshaw & Jost, 512 Court St., consult. engrs. CD 3/15/45.

Ill., Waukegan—City, sanitary sewer exten., **$400,000.** Staber & Hooper, 222 Market St., consult. engrs. CD 8/14.

Ind. Boonville—Bd. P. Wks., Ethel Barclay, clk., City Hall, sewage treatment plant, sewerage sys., 1 story, bsmnt., 32x35 ft., brick, rien.-con., structural steel

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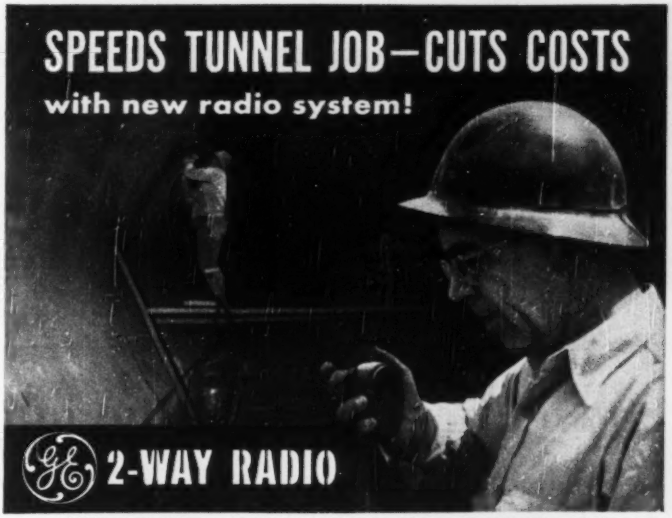

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service bldg.; 5,750 ft. 15 and 21 in. concrete or vitr. clay pipe, 100 ft. 15 in. rein.-con. pipe, 19 brick manholes, 1,000 GPM raw sewage pump, 2 primary settling tanks, 1 grit chamber, etc. $335,000. Couch & Kulin, 230 E. Ohio St., Indianapolis, consult. engrs.

Mich., Chesaning—City, P. Wks. Dpt., sanitary sewers, treatment facilities. $300,000.

Mich., Muskegon—City, P. Wks., City Hall, voted bonds, storm sewers in various sections. $500,000. CD 1/2/47.

▲ **Mich., Flint**—City, Harold M. Kinder, mgr., relief sewers, storm and sanitary sewers, $5,000,000. CD 12/11/45.

Minn., Hibbing—Village, G. J. Grady Jr., clk., voted bonds Nov. 24, storm and sanitary sewers, interceptors, imprv. sewage treatment plant. $742,000. Bannister Eng. Co., 1549 University Ave., St. Paul, consult. engrs. CD 11/2.

N. C., Marion—Town, Reece Snyder, city mgr., Marion, sewage disposal plant. $400,000. CD /29/45.

▲ **O., Columbus**—City, Elmer A. Keller, Service Dir., Columbus, sewers, Maryland Ave. district sewer repair program, the Gibbard-Cleveland area and lower West Side relief sewers, $180,000; relief sewers, closing of Hardesty and Dry Run ditches, new manholes and manhole repairs, sewer rebuilding, etc., $920,000. Orris Bonney, ch. engr. Div. of Sewers & Drains. CD 11/19/45.

Ore., Cottage Grove—City, City Hall, voted $400,000 bonds sewerage sys. Stevens & Koon, Spalding Bldg., Portland, consult. engrs. L. W. Coiner, city engr. CD 10/18.

Ore., Oakridge—City, City Hall, voted bonds, sewers, $200,000. John H. Quiner, city engr. CD 7/31/47.

Pa., Everett—Everett Boro, Everett, sewage plant. $400,000. Capital Eng. Corp., Dillsburg, consult engr. CD 1/25/45.

Tenn., Cleveland—City, sewage disposal plant and sys. addns. $911,000. Wiedeman & Singleton, P. O. Box 1878, Atlanta, Ga., consult. engrs.

▲ **Tex., Bellaire**—Harris County Water Control & Imprvt. Dist. 24, Bellaire, storm sewers, $1,000,000; sanitary sewer lines, $750,000; disposal plant, $750,000; drainage, $650,000.

Tex., Jacinto City (Houston P.O.)—City, storm sewers $225,856. Frank J. Metyko, Scanlan Bldg., Houston, consult. engr. CD 3/4/49.

P. E. I., Charlottetown—Municipality, sewerage sys. $300,000. H. A. Messervy, City Hall, city engr.

Que., L'Abord A Plouffe—Municipality, sewerage sys. $500,000. E. Gohier, 10 W. St. James St., Montreal, engr.

BRIDGES

▲ **New Jersey**—State Hy. Dpt., **Trenton**,
Essex Co.—exten. approach to Stickel Memorial Bridge to High St. $2,900,000.

▲ **New Jersey**—State Hy. Dpt., Trenton,
Hudson Co.—bridge across the Hackensack River on Route 25, Jersey City. $5,000,000. A. Kilpatrick, state hy. engr.

▲ **Wis., Milwaukee**—Milwaukee County Park Comn., Milwaukee, steel, concrete high level bridge over Milwaukee Harbor Entrance. $16,354,000. Ammann & Whitney, 76 9 Ave., New York, N. Y., consult engrs. E. A. Howard, c/o owner, engr.

STREETS AND ROADS

▲ **New Jersey**—State Hy. Dpt., **Trenton**,
Essex Co.—modern Essex Co. highway sys. incl. complete Rt. 10 artery passing through Livingston, Roseland, West Orange, Montclair, Glen Ridge, Bloomfield, and Belleville, 4 lane Montclair connection previously proposed in May 1948, $200,000,000. Edwards & Kelcey, 3 William St., Newark, consult. engrs. CD 5/1/47.

▲ **New York**—Bureau Contracts & Accounts, Albany,
Oneida Co.—16.8 mi. arterial route sys. in city of Utica and 6.7 mi. outside of city, $13,397,600.

Okla., McAlester—City, asph. paving in 30 residence blocks. $200,000. Hudgins, Thompson & Ball, 1100 W. Main St., Oklahoma City, consult. engrs.

▲ **Ore., Eugene**—City, City Hall, street repair and imprv. program. $1,000,000. W. C. Clubb, city engr.

Tex., Bellaire—Harris County Water Control & Imprvt. Dist. 24, Bellaire, street and road paving. $350,000.

Tex., El Campo—City, defeated bonds, street paving, $300,000. Ford Hudson, city engr.

Tex., Hillsboro—Hill Co., Court House, voted bonds, rural road in Birome, $175,000; rural road in Mount Calm, $200,000.

▲ **Tex., Longview**—Gregg Co., Earl Sharp, judge, Longview, voted bonds, road imprvs. and paving, Northern Sect. of county, $500,000; 22 mi. Eastern Sect. of county, $500,000; 26 mi. Southern Sect. of county, $500,000; 30 mi. Western Sect. of county, $500,000; 20 mi. Central Sect. of county, $500,000. CD 11/2.

Tex., Schulenburg—Fayette Co., Hubert Heller, comr., Schulenburg, 4.2 mi. asph. paving Hy. 90 to St. John. $70,000; farm to market road, 4.1 mi. Hy. 77 to Freyburg, $65,000; 3.8 mi. rebuilding abandoned hy. east of Schulenburg to Colorado Co. line, $60,000. CD 7/23/48.

(Continued on page 80)

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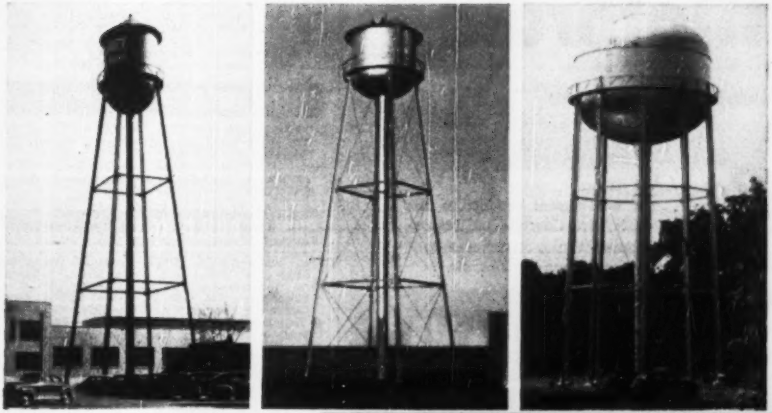

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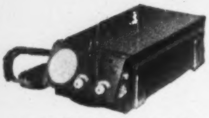

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(Continued from page 78)

▲ **Wis., Milwaukee**—City, 1st leg of expressway along 44 and Clybourn Sts., **$12,250,000.** Ammann & Whitney, 76 9 Ave., New York, N. Y., consult. engrs. Lloyd D. Knapp, city engr.

Quebec—Hon. A. Talbort, minister Dpt. Roads, Quebec City,

Needle Mountain—26 mi. road from ore body to harbor facilities on St. Lawrence River for transportation of copper ore from prospected deposit. **Approx. $800,000.**

EARTHWORK, WATERWAYS

† **Oregon**—Bureau Reclamation, Dpt. Interior, Bend, pneumatically-applied mortar canal sealing, North Unit Main Canal, between Mile 7 and Mile 26, Deschutes Project, near Bend. Prospective bidders, wishing to inspect the sites of the work should do so prior to December 15, 1950, and should contact J. W. Taylor, Construction Engineer, U. S. Bureau of Reclamation, Bend, Oregon, prior to their visit to insure that weather conditions are satisfactory for their inspection of the work. CD 9/7/44.

Tex., Corpus Christi—Nueces County Navigation Dist., Gugenheim-Cohn Bldg., boat slips. **$200,000.** Horner & Wyatt, Dwight Bldg., Kansas City, Mo., consult. engrs. Duane Orr, dist. engr. CD 11/14.

▲ **Quebec**—Manicouagan Power Co., c/o Quebec North Shore Paper Co., Baie Comeau, addnl. power development, near here, on Manicouagan and Cutardes Rivers with 30,000 hp.; ultimate develooment 500,000-600,000 hp. **$15,000,000-$20,000,000.**

AIRPORTS

La., New Orleans—ADMINISTRATION **BLDG.—Orleans** Levee Bd., c/o Herbert A. Benson & Geo. J. Riehl, archts., Canal Bank Bldg., altering administration bldg. at New Orleans Airport. **$218,200.** CD 12/29/44.

▲ **Tenn., Memphis**—TERMINAL—City, City Hall, terminal bldg. at municipal airport. **$2,260,000.** CD 1/27/47.

† **Alaska**—AIR FORCE BASE IMPRVS.—U. S. Eng., First and Douglas Sts. N.W., Wash. 25, D. C., fire station, **$275,000;** coal storage, **$275,000;** utilities **$2,700,000;** post exchange, **$135,000;** barracks **$5,000,000;** maintenance shop, **$1,275,000;** battalion headquarters and supply, **$257,900;** dispensary, **$160,000;** family quarters, **$1,600,000;** site clearing, **$160,200;** artillery shop, **$520,200;** fire reporting sys., **$14,400;** oil and grease storage, **$74,800;** warehouse, **$300,000;** railroad, **$123,100;** gymnasium, **$808,000;** headquarters building, **$315,900;** battalion headquarters and supply bldg., **$250,000;** bachelor officers quarters, **$250,000;** ammunition storage, **$350,000,** at Ladd Air Force Base.

▲† **Alaska**—AIR FORCE BASE IMPRVS.—U. S. Eng., First and Douglas Sts. N.W., Wash. 25, D. C., gymnasium, **$800,000;** infirmary, **$170,000;** bachelor officers quarters, **$250,000;** utilities, **$3,000,000;** barracks, **$2,931,500;** maintenance shops, **$1,250,000;** special maintenance shops, **$300,000;** ordnance shops, **$400,000;** gasoline dispensing station, **$15,000;** general warehouse, **$300,000;** family quarters, **$3,500,000;** oil and grease storage facilities, **$75,000;** ammunition storage, **$350,000;** petroleum storage, **$2,800,000;** battalion headquarters and supply bldg. **$250,000;** utilities, uilidor and tie-in to new power plant, **$1,000,000;** telephone exchange, **$200,000;** munitions dock, **$600,000;** refrigerated bldg., **$450,000;** heat and power plant, **$7,500,000** at Eielson Air Force **Base.**

AMERICANS ABROAD

Italy, Rome—Scoieta Generale Immobilare, c/o Hilton Hotels International, Inc., 2 W. 59 St., New York, N. Y., U. S. A., plans by Skidmore, Owings & Merrill, 585 Madison Ave., New York, N. Y., U. S. A., Albergo del Cavaliere Hilton Hotel. **$6,000,000.**

LATIN AMERICA

Mexico—Goahuila State Govt., **Palacio del Estado,** Saltillo, plans 1,600 low-price homes for workers. $2,310,000.

Mexico, Monterrey—Pigmentos y Oxidos, S.A., Villagran, 2825 Norte, Monterrey, N.L., plans chromate factory. **$300,000.**

PUBLIC BUILDINGS

Ala., Mobile—TRADE SCHOOL—State Bd. Educ., 501 Dexter Ave., Montgomery, Trade School, **$750,000.**

Conn., Hartford—PARKING GARAGE—City, c/o C. F. Sharp, mgr., 550 Main St., 3-level parking garage, Chapel and Trumbull Sts., **$2,940,000.** CD 3/6/47.

▲ **Fla., New Smyrna Beach**—HOUSING—New Smyrna Beach Housing Auth., New Smyrna, plans by MacDonough, Craig & Snead, 15 N. Wild Olive Ave., Daytona Beach, 200 housing units, **$1,500,000.**

▲ **Ill., East St. Louis**—SCHOOLS—Bd. Educ., School Dist. 189, St. Clair Co., Bernice Goedde, pres., 240 N. 6 St., defeated **$3,950,000** bonds, schools. Albert M. Goedde 1452 State St., archt. CD 10/31.

▲ **Ill., Lyons, Brookfield and Stickney Twp.**—SCHOOLS—School Dist. 103, c/o Washing School, Lyons, plans by Perkins & Wills, 309 W. Jackson St., Chicago, Zone 6, school and Costello School addn., in Lyons; Lincoln School addn., **Brookfield; Haley School** addn. and new school, Stickney Twp. **$1,700,000.**

▲ **Ind., Indianapolis**—SERVICE—Indiana University, Bd. Trustees, J. A. Franklin, treas., Union Bldg., Bloomington, plans by Edward James, 122 E. Michigan St., 8 story, 129x205 ft., brick, stone, rein.-con. structural steel service bldg. (apartments), Ind. Medical Center, **$3,000,000.**

Ia., Council Bluffs—SCHOOL—Bd. Educ., Independent School Dist., voted **$615,000** bonds, school, at McMillen Second Ave. Dist. CD 11/1.

▲ **Ia., Waterloo**—SCHOOL—Independent School Dist., Waterloo, plans by Todd-Hedeen & Assocs., Waterloo, Junior High School. **$1,300,000.** CD 7/11/49

Ia., Waverly—COUNTY HOME—Bremer Co. c/o Bd. Co. Supervs., Waterloo, voted **$400,000** bonds Nov. 7, 3 story, 48x84 ft., and 38x164 ft., cut stone trim county home. Ralston & Ralston, Waterloo, archts.

Ia., Webster City—SCHOOLS—Bd. Educ., Webster City School Dist., Webster City, defeated **$512,000** bonds Nov. 16, schools. J. H. McBurney, supt. Schools, Former $490,000 bond issue defeated also. **CD 9/27.**

▲ **Mass., Boston**—GARAGE—City, Real Estate Comn., City Hall Annex, cage type garage, Copley Square area, between Clarendon and Berkeley Sts. **$1,250,000.**

Mass., Cambridge—HOUSING—City of Cambridge Housing Auth., 1416 Mass. Ave., plans by August J. Schumacher, 102 Mt. Auburn St., 150 housing units, PHA 3-2, Thingvalla Ave., Cushing Center and Belmont Line, **$750,000.** CD 5/5.

Mass., Pocasset—SANATORIUM—Barnstable Co. Sanatorium, Wm. J. Lockhart, chn. Bd. Trustees, plans by Coolidge, Shepley, Bulfinch & Abbott, 1 Court St., Boston, sanatorium addns. **$750,000.** CD 12/29/49.

Mich., Flint—HOSPITAL—City, Harold M. Kinder, mgr., brick, steel hospital addn., alterations. **$400,000.**

▲ **Mich., Iron Mountain**—HOUSING—City of Iron Mountain Housing Comn., 125 brick housing units, **$1,100,000.**

Mich., Utica—SCHOOL—Bd. Educ., Utica, voted bonds, brick, masonry school, **$450,000.**

▲ **Minn., Grand Rapids**—SCHOOL—Bd. Educ., J. A. Anderson, clk., voted $1,500,000 bonds Nov. 7, for schools, sites, etc., incl. Forest Lake Grade School, **$500,000.** A. R. Melander, 603 Alworth Bldg., Duluth, archt. CD 8/30/45.

Minn., Jackson—SCHOOL—Bd. Educ., R. N. Forsberg, clk., voted bonds Nov. 14, 2 story, brick, concrete gd school, **$500,000.** Pass & Rockey, Mankato, archts. CD 10/26.

▲ **Miss., Columbus** — SCHOOL — Columbus Separate School Dist., voted bonds, school imprvs. **$1,500,000.** CD 10/27.

N. H., Durham—DORMITORY—State University of New Hampshire, Durham, **$500,000** bonds sold, dormitory.

▲† **N. M., Las Cruces**—OFFICERS QUARTERS, etc.—U. S. Eng., First and Douglas Sts. N. W., Wash. 25, D. C., bachelor officers quarters, **$125,000**; barracks, **$914,400**; storehouses, **$100,000**; automotive maintenance shop, **$120,000**; fuel stations, **$10,000**; meteorological station, **$41,000**; ammunition storage magazines, **$175,000**; utilities shops, **$99,000**; refrigerating and ice plant, **$201;000,** at White Sands Proving Ground.

† **N. Y., Schenectady**—SHOP, etc.—U. S. Eng., First and Douglas Sts. N. W., Wash. 25, D. C., base maintenance shop bldg., utilities, Schenectady General Depot. **$749,000.**

Pa., Easton—SCHOOL—Palmer Twp. School Dist., Easton, plans by J. M. Blew & Son, 1831 Chestnut St., Phila., school. **$500,000.** CD 7/17/47.

Tex., Dallas—GARAGE, etc.—City, City Hall, Main and Harwood Sts., garage and parking lot, 47 acre tract in Trinity Levee Dist., southeast of Union Terminal. **$500,000.** J. T. Conroy, City Hall, Pub. Wks. Engr.

▲ **Tex., Galveston**—HOSPITAL SCHOOL—Board for Texas State Hospitals & Special Schools, 45 and Lamar Sts., Austin, plans by Walter C. Moore, Bd. Supv. archt., c/o owner, 250-bed hospital school for custodial cases. **$2,500,000.** CD 1/10/45.

▲ **Tex., Goose Creek**—SCHOOLS, etc.—Goose Creek School Bd., Baytown, North Side Gymnasium, **$325,000**; auditorium, **$300,000**; elementary school addns. **$350,000**; high school addn. **$450,000**, Junior High School addn. **$400,000**; cafeteria constr. Northside, **$325,000**; grade school addns. **$375,000**; cafeteria constr. Southside, **$350,000**; Southside Gymnasium, **$300,000.** CD 7/12/45.

▲ **Tex., Houston**—PORT TERMINAL—Port Comn., Wharf 13, port terminal, 950-acre tract on channel near Morgans Point. **$5,000,000. W. F. Heavy,** c/o owner, engr. CD 2/25/49.

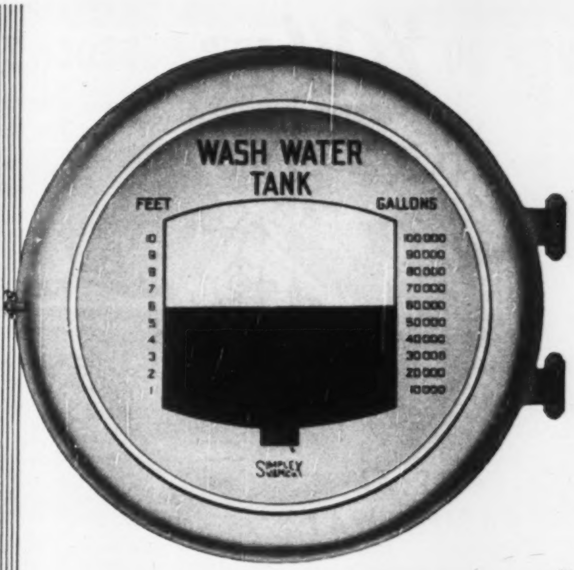
Tex., Olney—HOUSING—Olney Housing Auth., Olney, plans by John A. Perkins & Assoc., 2203½ Cedar Springs St., Dallas. 50 unit housing, **$450,000.** CD 10/28/49.

▲ **Wash., Kennewick** — HOUSING — Kennewick Housing Auth., plans by Bassetti & Morse, 1621 Boren Ave., Seattle, 150 housing units, **$1,200,000.** CD 3/9.

Wis., Monroe—HOME—Green Co., Monroe, plans by Durant & Gergquist, Boscobel, 85 bed home for aged. **$556,250.** CD 12/3/46.

Wyo., Lusk and Lance Creek—SCHOOL—Niobrara County Bd. Educ., Lusk, defeated bonds, school expansion, incl. combination Junior-Senior High School. **$737,000.** CD 10/19.

▲† **Alaska, Fort Richardson**—VARIOUS BUILDINGS—U. S. Eng., First and Douglas Sts., N.W., Wash. 25, D. C., telephone exchange, **$320,000**; service club, **$300,000**; maintenance shop, **$2,900,000**; family



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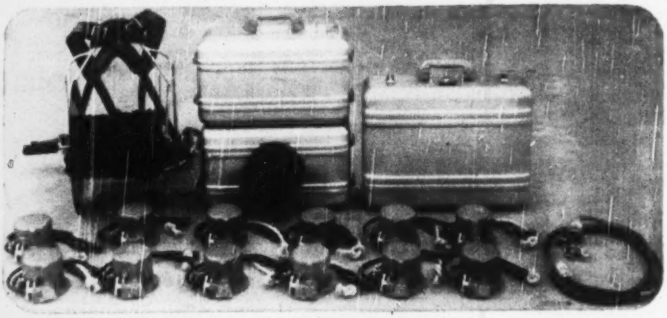

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quarters, $4,000,000; engineer shops, $1,000,000; officers mess, $400,000; bachelor officers quarters, $1,300,000; repair shop, $1,500,000; administration bldg., $1,350,000; dispensary, $300,000; post engineer facility, $900,000, laundry and dry cleaning plant, $2,000,000; bakery, $400,000; fire station, $200,000; refrigerated warehouse, $2,800,000; shops, general depot, $2,000,000; gas stations, $64,000; indoor training facilities, $2,600,000; field maintenance shops, $800,000; paint and dope storage, $44,000; battalion headquarters and supply bldg., $400,000; mess, $350,000; drum reconditioning plant, $400,000; theatre, $700,000; ammunition storage, $500,000.

▲† **Alaska, Kent**—COMMUNICATIONS STATION—U. S. Eng., First and Douglas Sts. N.W., Wash. 25, D. C., communications station. $7,000,000.

▲† **Alaska, Whittier**—FIRE STATION, etc.—U. S. Eng., First and Douglas Sts. N.W., Wash. 25, D. C., fire station, $240,000; composite administrative and housing bldg. $6,000,000; power plant, $1,500,000. CD /313.

Ont., London—SCHOOL—Separate School Bd., E. Coombs, secy., plans by C. H. Gillin, 284 Dundas St., 3 story, 112x180 ft., brick, steel school, Queens Ave. and Colborne St. Approx. $475,000.

Ont., St. Catherines—HOME FOR AGED—City, H. H. Smith, clk., home for aged, Approx. $400,000. CD 11/29/48.

COMMERCIAL BUILDINGS

Calif., North Long Beach—RESTAURANT—Sidney Hodemaker, c/o Wayne D. McAllister, 125 W. 9 St., and A. C. Martin & Assoc., archts., 33 S. Beaudry St., steel, stucco restaurant. $500,000.

Calif., San Francisco—CHURCH—San Francisco Archdiocese of Roman Catholic Church, 1100 Franklin St., plans by Mario Ciampi, 425 Bush St., rein.-con., church and wood frame convent, for Corpus Christi Parish, $400,000.

▲ **Colo., Aurora**—RESIDENCES, etc.—F. & S. Constr. Co., 17 W. Roosevelt St., Phoenix, Ariz., plans by Ralph Haver, 207 E. Camelback Rd., Phoenix, Ariz., 1,600 one story residences and 1 story shopping center. $25,000,000.

Ind., Hammond—APARTMENT—Calumet Constr. Co., 7244 Northcote St., plans by Turner & Turner, 5246 Hohman Ave., 2 story, bsmnt. 112 unit apartment, $500,000.

Ind., Gary—CHURCH, etc.—St. Lukes Catholic Parish plans by Thomas Medland, 215 4 Ave., Logansport, church and parish hall, $400,000.

Ind., Hammond—HOSPITAL—St. Margaret's Hospital, Hammond, plans by Bertram & Bachman, 5116 Hohman Ave., 4 story, bsmnt., brick hospital adn., $710,000.

▲ **Ind., Gary**—APARTMENT—Shamrock Constr. Co., 50 and Madison Sts., plans by Turner & Turner, 5246 Hohman St., Hammond, 86 unit apartment, $1,200,000.

▲ **Ind., Speedway City**—OFFICE—Allison Div., General Motors Corp., Speedway City, 2 story, 100,000 sq. ft. office bldg. addn., at Plant 3 directly in front of present office entrance extending 400 ft. along W. 10 St., $1,500,000.

Md., Baltimore—DWELLINGS—Sherwood Estates, Inc., 7622 Parkwood Rd., fifty 25x32x20 ft. sheet rock dwellings, cement fdn., 2600 block Lynbrook Rd., 2600 block Ambler Rd., 2500 block Ambler Rd. near here. $400,000.

Mich., Flint—SCHOOL—St. Agnes Parish, Flint, plans by Diehl & Diehl, 120 Madison Ave., Detroit, brick, steel St. Agenes High School, $400,000.

▲**Mich., Holland**—COLLEGE—Bd. Trustees Hope College, Holland, college, $1,000,000.

N. Y., New York—APARTMENT—R. H. T. Building Corp., 349 E. 149 St., Zone 51, plans by H. Herbert Lilien, 201 W. 72 St., Zone 23, 11 story apartment, Henry Hudson Parkway, south of 239 St. $800,000.

Tex., Houston—DWELLINGS—Burns Lumber Co., 9520, Humble Rd., 40 frame dwellings, concrete slab fdn., Greenwood Village, $325,000; 60 dwellings in new area off Little York Rd., $480,000.

▲ **Tex., Houston**—DWELLINGS—Carver Estates, Inc., 2301 Calumet St., c/o Alex Deutser, 100 dwellings in an area adjacent to Carver Estates, $750,000; 200 addnl. homes in new area of Carver Estates, $1,400,000.

Tex., Houston—DWELLINGS—Lynwood Corp., c/o W. C. Bond, 213 Georgia St., 65 addnl. frame dwellings, concrete slab fdn., in sec. of McGregor Terrace, $475,000.

▲ **Tex., Tyler** — HOTEL — Syndicate, c/o Chamber of Commerce, Tyler, 150-room hotel. $1,250,000.

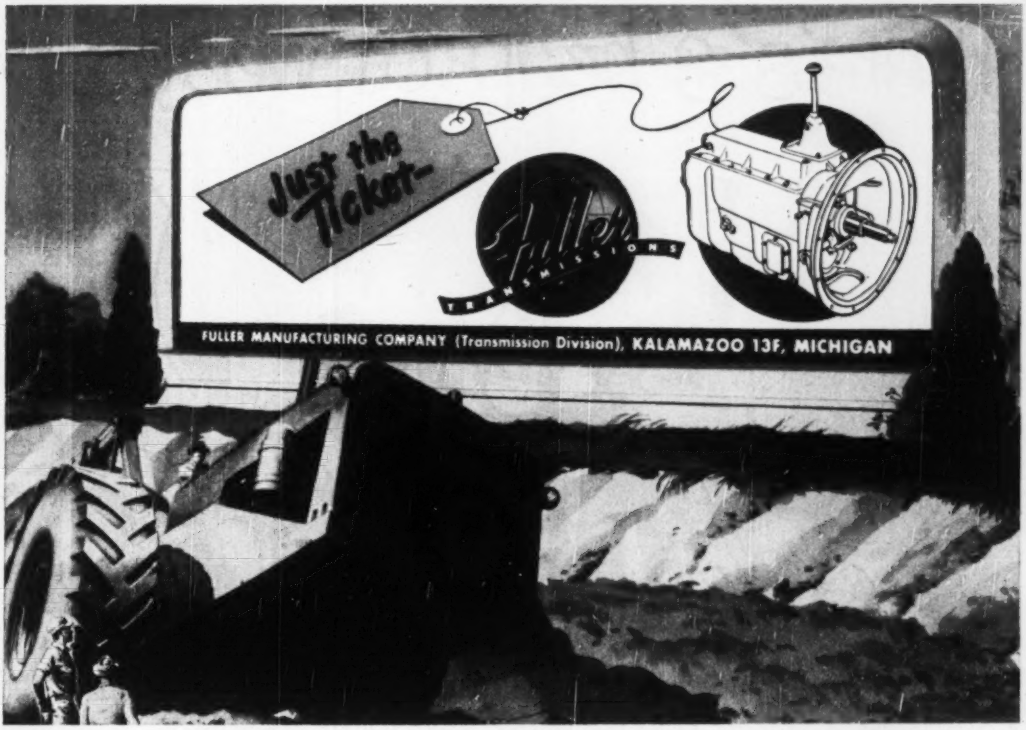
W. Va., Morgantown—CHURCH—First Presbyterian Church, Spruce St. and Forest Ave., plans by Frank E. Wehrle, 530 Wm. Penn Pl., Pittsburgh, Pa., church $400,000. CD 5/25.

Ont., Hamilton — APARTMENT — Alex P. Brown, 182 Wentworth St. S., 10 story apartment, James St. $400,000.

INDUSTRIAL BUILDINGS

▲ **Fla., Mulberry**—PLANT—International Minerals & Chemical Co., 20 N. Wacker Dr., Chicago 6, Ill., phosphate rock refining plant. $2,500,000.

▲ **Ill., Chicago**—PLANT, etc.—Pioneer Paper Stock Co., 448 W. Ohio St., Zone 10, plans by Morton Pereira & Assocs., 100 W. Monroe St., Zone 4, plant, office and garage, 2600 Elston St. $1,250,000.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▲ **Ill., Granite City**—BLAST FURNACE FACILITIES—Granite City Steel Co., John M. Marshall, pres., surveys additional blast furnace facilities, addnl. coke ovens, addnl. open hearth facilities, blooming mill, soaking pits, slab furnaces, scarfing dock, etc. and extensive dock facilities at new Granite City harbor on Mississippi River, **$50,000,000** overall. Coverdale & Colpitts, 120 Wall St., New York, N. Y., consult. engrs. on survey studies. Sverdrup & Parcel, Syndicate Trust Bldg., 917 Olive St., St. Louis, Mo., consult. engrs.

▲ **Ind., Indianapolis**—FACTORY—P. R. Mallory Co., Inc., D. W. Alexander, vice-pres., E. Washington St. 120,000 sq. ft. factory. **$1,000,000.**

Kan., Kansas City—PLANT—Colgate-Palmolive-Peet Co., 17 and Kansas Sts., Zone 5, plans by Albert Kahn Associated Architects & Engineers, Inc., 345 New Center Bldg., Detroit, Mich., detergent plant addn. **$900,000.** CD 2/11/49.

▲ **Ky., Owensboro**—PLANT—Green River Steel Corp., Owensboro, steel plant on 120 acres site, **$8,000,000.** Sidney D. Williams, Owensboro, consult. engr.

▲ **Mass., Belmont**—PLANT—National Biscuit Co., 190 Albany St., Cambridge, brick, steel, concrete plant and offices, Hill Estate. **$4,000,000.**

Mass., Boston—PLANT—New England Provision Co., 27 Fulton St., meat packing plant, **$750,000.** Henschein Everds & Crombie, 59 E. Van Buren St., Chicago, Ill., consult. engrs.

Mich., Coldwater—WAREHOUSE—Gamble-Skogmo Corp., Coldwater, warehouse and distr. sales offices on site near southern city limits on U. S. Hy. 27, **$600,000.**

Miss., Fernwood—PLANT—Indianapolis Wirebound Box Co., c/o Morris L. McNair, archt., Rosenbaum Bldg., Meridian, 70,000 sq. ft. box mfg. plant, **$300,000.**

Mo., Kansas City—PLANT, etc.—Missouri Pacific R. R. Co., R. P. Hart, ch. engr., Missouri Pacific Bldg., St. Louis, Zone 3, diesel engine servicing and maintenance plant, Topping Ave., **$150,000**; freight station and yard extensions, **$400,000**, in Northeast Ind. Dist.

▲ **O., Dayton**—FACTORY—Greenback Metal Powder Co., 951 Washington St., factory for mfg. metal powders, north of Dayton city limits on 15 acre site. **$1,000,000.**

Okla., Oklahoma City—REFINERY IMPRVS., etc.—Oklahoma Natural Gas Co., 401 N. Harvey St., refinery imprvs. and remodeling, **$350,000**; addnl. transmission lines in area of recently purchased refinery, **$200,000.**

▲ **Okla., Pryor**—PAPER MILL—National Gypsum Co., 325 Delaware Ave., Buffalo, N. Y., paper mill, near here. **$4,000,000.**

▲ **Pa., Yeadon**—WAREHOUSE—A. & P. Food Stores, 32 and Chestnut Sts., Phila., warehouse. **$2,000,000.**

Tex., Houston—FREIGHT PLANT—Central Freight Lines, Inc., 1200 Walnut St., 1 and 2 story, 80x300 ft. masonry freight plant or terminal 16 acres on Fulton St. near Coronado St. **$350,000.**

Tex., Houston—FREIGHT TERMINAL, etc.—Missouri Pacific R. R. Co., c/o R. P. Hart, ch. engr., Mo. Pacific Bldg., St. Louis 3, Mo., freight terminal expansion **$150,000**; shop expansion **$200,000.**

▲ **Ont., Fort Frances**—PLANT EXPANSION—Minnesota & Ontario Paper Co. Ltd., Fort Frances, plant expansion. **$3,000,000.** CD 5/22/47.

▲ **Que., Needle Mountain**—MILL—Noranda Mines Ltd., J. Y. Murdoch, pres., Royal Bank Bldg., Toronto, Ont., copper mill. **Approx. $15,000,000-$20,000,000.**

UNCLASSIFIED

Conn., Hartford—PARK IMPROVEMENTS—City, C. F. Sharpe, mgr., 550 Main St., widn. street along the north fringe of Bushnell Park to Ford and Pearl Sts., **$200,000.** CD 10/12/44

Fla., Sanford—TERMINAL, etc.—City, waterfront terminal and docks **$350,000.** F. C. Hillyer & Assocs., 227 W. Forsyth St., Jacksonville, Zone 2, consult. engrs. CD 9/25.

Ga., Lawrenceville—NATURAL GAS SYSTEM—City, voted bonds, natural gas sys., **$500,000.**

Mississippi — RURAL DISTRIBUTION LINES — Tippah Electric Power Assn., Ripley, 211 mi. rural distr. lines, Proj. Miss. 47 A, Tippah Co. **$325,000.** Allen & Hoshall, 65 McCall Pl., Memphis, Tenn., consult. engrs. CD 7/14/49.

Missouri—GAS PIPE LINES—Central West Utility Co., R. G. Reed, secy., 1009 Baltimore Ave., Kansas City, Mo., gas pipe lines in Clay Co. **$300,000.** A. L. Mullergren, Fairfax Bldg., Kansas City, Mo., consult. engr.

Missouri—RURAL DISTRIBUTION LINES—Gascosage Electric Co-operative, Dixon, 77 mi. rural distr. lines, sys. imprvs. in Maries, Miller and Pulaski Counties, **$400,000.** Frank Horton & Co., Lamar, consult. engrs.

Missouri — RURAL DISTRIBUTION LINES — Laclede Electric Co-operative, J. W. Hough, mgr., Lebanon, 310 mi. rural distr. lines, Loclede, Canden, and Pulaski Counties and vicinity, **$715,000.** Frank Horton & Co., Lamar, consult. engrs. CD 6/28/49.

Missouri—BLEACHERS, etc.—Riverside Stadium, Inc., J. A. McClendon, Lee's Summit, 8,000 seating capacity bleachers and ½ mi. dirt oval for car and harness horse racing, bordering Kansas City, and Clay Co. area, Hys. N. 71 and 45, Platte Co.

Mo., St. Louis—DIESEL SHOPS—St. Louis-San Francisco Ry. Co., E. L. Anderson, asst. ch. engr., 833 St. Louis St., Springfield, 95x249 ft. diesel shops, addn., 4 tracks, with servicing pits, **$300,000.**

Montana—RURAL DISTRIBUTION LINES—Marias River Electric Co-operative, Shelby, 147 mi. rural distr. lines and sys. imprvs., in Toole Co., **$256,000.**

▲ **Nebraska and Kansas**—PIPE LINES—Kansas-Nebraska Natural Gas Co., Phillipsburg, Kan., 300 mi. pipe lines in the two states, new compressor stations at Holcomb, Kan., Albion Neb. and Grand Island, Neb. **$5,201,331.** Thomas Creigh, Jr., c/o owner, ch. engr.

† **N. M., Las Cruces**—FIELD INSTRUMENTATION, etc.—U.S. Eng., First and Douglas Sts., N.W. Wash. 25, D. C., exten. field instrumentation, **$355,000**; electrical power distr. **$110,000**; airport facilities imprvs. **$135,000**, at White Sands Proving Grounds.

▲ **Oklahoma**—GAS LINES, etc.—Oklahoma Natural Gas Co., 401 N. Harvey St., Oklahoma City, 40 mi. 16 in. gas pipe line from Chickasha to Golden Trend area, **$800,000**; booster station, Chickasha area, **$245,000**; warehouse, **$400,000**; central meter shops, **$494,500**, in Oklahoma City, CD 11/16; 52 mi. 26 in. natural gas line from Edmond to tie into Depew storage, **$2,275,000**; booster station, Edmond area, **$200,000**; warehouse at Edmond, **$90,000**; natural gas distr. sys., Guthrie, **$85,000**; Kingfisher, **$75,000**; Dover, **$85,000**; Henessey, **$90,000**; Crescent, **$75,000**; underground chambers for gas storage, **$615,700**; new products storage facilities, at Depew, **$475,000.**

R. I., Providence—PARKING AREA—City, Bd. Contr. & Supply, City Clerks Office, City Hall, parking area, Pershing Square. **$400,000.** CD 11/17.

Texas—RURAL DISTRIBUTION LINES—Sam Houston Electric Co-operative, Livingston, rural distr. lines, Sam Houston Co. **$400,000.**

Texas—TELEPHONE LINES, etc.—Southwestern Associated Telephone Co., Memphis, new and rebuilt toll circuit and lines, at Dodson, Collingsworth Co., **$150,000**; rebuilding telephone lines and consrtucting new lines, Wellington Co., **$200,000.**

Wyoming—RURAL DISTRIBUTION LINES—Hot Springs Rural Electric Assn., Thermopolis, voted **$550,000** bonds, 314 mi. rural distr. lines, 34.5 mi. transmission lines and 4 mi. tie line, H. S. Nixon Eng. Co., WOW Bldg., Omaha, Neb., consult. engrs. CD 7/11/49.

▲† **Alaska, Fort Richardson**—UTILITIES, etc.—U. S. Eng., First and Douglas Sts. N. W., Wash. 25, D. C., utilities, **$5,000,000**; oil storage, **$1,500,000.**

† **Alaska, Whittier**—UTILITIES—U. S. Eng., First and Douglas Sts. N. W., Wash. 25, D. C., utilities, **$900,000.**

▲ **British Columbia**—GAS PIPE LINE—West Coast Transmission Co. Ltd., 304 Toronto General Trust Bldg., Calgary, Alta, gas pipe line from international boundary west of Osoyoos to serve Spokane, Wash., U.S.A. and Hanford Atomic Plant, Richland Wash., U.S.A., Approx. **$5,000,000**; gas pipe line from Vancouver, B. C. south to Seattle, Wash., and Portland, Ore., U.S.A., **$10,000,000.**

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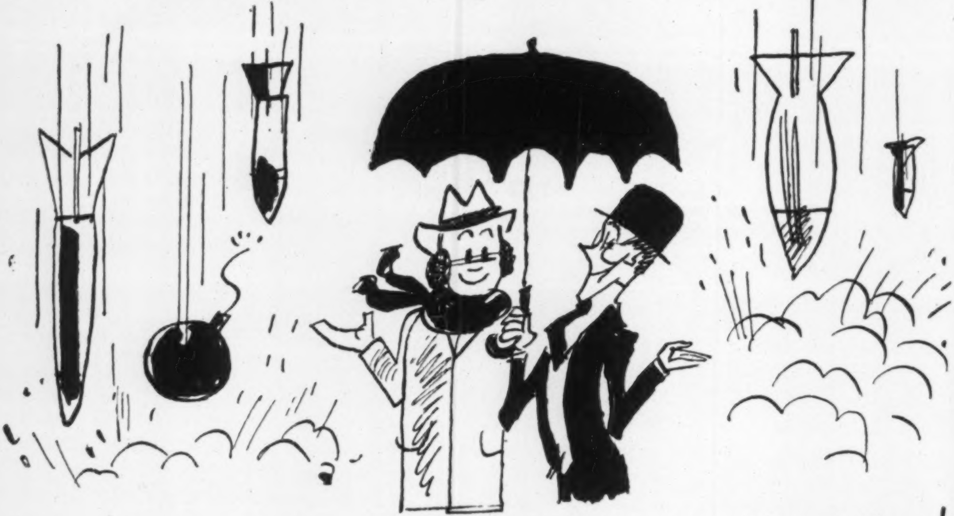

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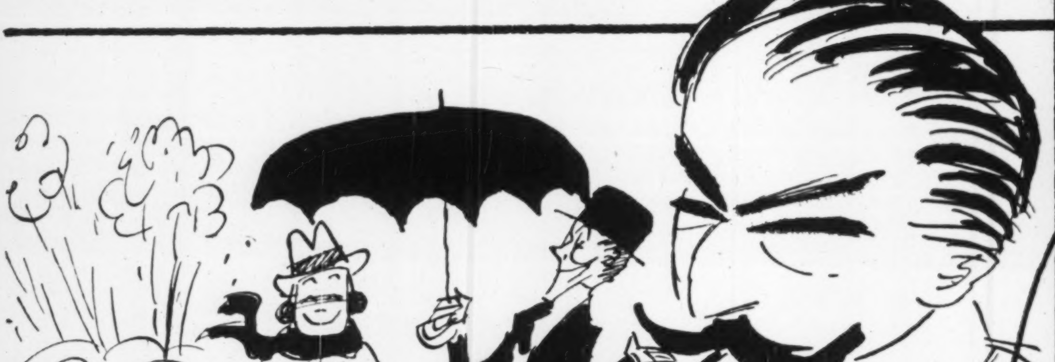

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CONSTRUCTION REPORTS-Second Section

WATER SUPPLY

BIDS ASKED

Tex., Los Fresnos—B.A. 12/27—City, WW. $70,000. Plans deposit $25. Sigler, Clark & Winston, Box 428, Weslaco engrs. CD 8/17.

LOW BIDDERS

D. C., Wash.—Dpt. Sanitation, Distr. Comrs., District Bldg., Nov. 30, general installation and constr. Bryant St. Pumping Station, Bryant St. between 2 and 4 Sts. N.W., from Bass Eng. & Constr. Co., 215 Birmingham Theatre Bldg., Birmingham, Mich., Bid 10-A, **$688,300**; Bid 10-B, **$718,300**. CD 10/26.

CONTRACTS AWARDED

N. S., **Dartmouth**—Municipality, water expansion, to Atlantic Constr. Co. Ltd., 167 Upper Water St., Halifax, approx. **$700,000**. CD 5/17.

SEWERS, WASTE DISPOSAL

BIDS ASKED

Tex., Los Fresnos—B.A. 12/27—City, sanitary sewers. $60,000. Plans deposit $25. Sigler, Clark & Winston, Box 428, Weslaco, engrs.

LOW BIDDERS

▲ Va., **Roanoke**—City, Municipal Bldg., Nov. 20, Roanoke River interceptor sewers, lower river line, from Central Constr. Co., 200 E. Lee St., Louisville, Ky., **$756,230**, upper interceptor, from Wiley N. Jackson Co., Inc., and Neale Constr. Co., Inc., R.F.D. 4, Salem, **$848,896**. CD 11/6.

CONTRACTS AWARDED

Wyo., **Cheyenne**—City, sewage treatment plant, to Riedesel-Lowe Co., Box 974, **$683,000**. Bids 10/31. CD 11/8, under LB.

BRIDGES

BIDS ASKED

STATE HIGHWAY LETTINGS

December 19
Iowa
Maryland
West Virginia
December 20
New York
December 21
Florida

December 22
Tennessee
December 27
Pennsylvania
December 28
Pennsylvania
January 9
Washington

LOW BIDDERS

▲ **New Jersey**—New Jersey Turnpike Auth., 65 Prospect St., Trenton, Contr. 48, two 38 ft. wide rein.-con. roadway deck slabs upon superstructure steelwork to be constructed under Con. 20, between south abutment, Station 466 plus 48.16 and north abutment, Station 534 plus 95.41, etc. in connection with constr. Passaic River Bridge, Newark and Kearny, Essex and Hudson Counties, from Johnson, Drake & Piper, 86 Trinity Pl., New York, N. Y., **$1,224,450**. CD 11/13.

STREETS AND ROADS

BIDS ASKED

STATE HIGHWAY LETTINGS

December 19
Colorado
Iowa
Maryland
Massachusetts
West Virginia
December 20
Maine

December 21
Florida
December 22
Tennessee
December 27
California
Pennsylvania
December 28
Pennsylvania

Pa., **Mayview**—B.A. 12/20—General State Auth., 18 and Herr Sts., Harrisburg, general contract, plumbing, electrical work, construct roadways, utilities for senile bldgs. at Mayview State Hospital. Plans deposit $5 each. Palmgreen, Patterson & Fleming, 429 4 Ave., Pittsburgh, Zone 19, archts. A. F. Jones, c/o owner, ch. engr.

† Va., **Norfolk**—B.A. 12/20—Pub. Wks. Office, Headquarters, Fifth Naval Dist., U. S. Naval Base, Zone 11, repairing streets at U. S. Naval Base, (Marine Corps Forwarding Depot), Spec. No. 25158. Plans deposit $10.

LOW BIDDERS

Colorado—State Hy. Dpt., Denver, Nov. 29, grading, structures 11.875 mi. proposed relocation of State Hy. 185 beginning at Douglas Co. line and exten. south to point approx. 1½ mi. north of Castle Rock, Colo. Proj. FI 002-2 (11), Douglas Co., from C. L. Hubner, 4000 York St., Denver, **$742,808**. Est. $752,005.

CONTRACTS AWARDED

La., **New Orleans**—City, 302 City Hall, wid'n. Carrollton Ave. from Canal St. to City Park Ave., Proposal 15,879; wid'n. City Park Ave. from Canal St. to Carrollton Ave., Proposal 15,880; wid'n. LaSalle St. from Second St. to Louisiana Ave., Proposal 15,881; wid'n. Louisiana Ave. from Magazine St. to Loyola Ave., Proposal 15,882; wid'n. St. Bernard Ave. from Claiborne to Broad Aves., Proposal 15,883, to Boh Brothers Constr. Co., 2400 Cypress St., **$552,302**. Bids 11/30, awarded 12/1.

▲ **Ohio**—State Hy. Dpt., T. J. Kauer, dir. Columbus, Type T-32 on B-20, County Road 124, Defiance Co., to C. E. Edgington & Son, 1220 S. Main St., Findlay, Approx. **$81,460*****Type T-71, T-32 and structure, incl. grade crossing elimination, U.S.R. 50, Athens Co., to Nick Cenci & Sons, Inc., 844 N. Cassady Ave., Columbus, **$979,747**, est. $1,023,400. Bids 11/21. CD 11/10.

▲ **Ohio**—State Hy. Dpt., T. J. Kauer, dir., Columbus, Zone 15, macad.-bit. road mix S. R. 229, Delaware Co., to Braden & Wilters Constr. Co., 413 Peoples Bank Bldg., Marietta, **$132,623**, est. $191,300***grading, construct concrete extens. to concrete culvert (1 span) Bridge CL-9-3-41, 1.353 mi. County Road 9, Franklin Co., to H. W. Holt & Son, 998 W. Mound St., Columbus, **$177,000**, est. $246,400***macad.-b. conc. 4.128 mi. U. S. R. 33, Franklin and Union Counties, to Robert J. Dienst & Son, 297 S. High St., Columbus, **$479,000**, est. $533,000***c. conc. U. S. R. 23, Lucas Co., to Launder & Son, Inc., Station E, Box 6, Toledo, **$129,020**, est. $126,300***c. conc. U. S. R. 23, Sect. 6.83, Lucas Co., to R. I. Bernath, 4025 N. Haven St., Toledo, **$71,846**, est. $78,200***bit. road mix on stabil. paving, construct 3 span continuous steel beam bridge with concrete deck and substructure County Road 193, Miami Co., to Manix Bros., R. R. 1, Greenville, **$66,550**, est. $66,500***b. conc. wid'n., resurf. paving, S. R. 82, Summit Co., to The Wm. L. Schloss Asphalt Paving Co., 3494 Lee Rd., Cleveland, **$647,833**, est. $665,100***b. conc. S. R. 172, Stark Co., to Ooler Bros., Inc., 1324 Second St., S.W., Canton, **$115,482**, est. $150,460. Grand total $1,819,354. Bids 11/21, awarded 11/21. CD 11/10.

▲† **Alaska**—Bureau Pub. Rds., Dpt. Commerce, Juneau, grading, constr. 3 bridges, widn. 4th span, 9.5 mi. Seward-Anchorage Hy., Sect. A1, north of Seward between Mile Posts 5 and 12 and Mile Posts 14 and 17.5, to Manson Constr. & Eng. Co. and Osberg Constr. Co., 821 Alaskan Way, Seattle, Wash., **$1,054,413**. Bids 11/29. CD 11/9.

EARTHWORK, WATERWAYS

BIDS ASKED

Pennsylvania—B.A. 12/19—Dpt. Forests & Waters, 404 Education Bldg., Harrisburg, channel rectification of Schuylkill River from Penn St. Bridge, Reading to Norristown Dam, Berks and Montgomery Counties. $400,000. Plans deposit $50. Schuylkill River Project Engineers, 20 S. 15 St., Phila., engrs.

† **Idaho**—B.A. 12/28—Bureau Reclamation, Dpt. Interior, 214 Broadway, Boise, constructing East Hartley Gulch Drain, Payette Division, Boise Proj., 3 to 7 miles northeast of Caldwell, Spec. 100C-113. H. T. Nelson, regional dir.

† **Oregon**—B.A. 12/28—U.S. Eng., Pittock Block, Portland, 4 Walker free discharge valves for Lookout Point Dam. CIVENG 35-026-51-134.

LOW BIDDERS

† **Louisiana**—U. S. Eng., foot of Prytania St., New Orleans, Nov. 28, furnishing 127 vertical lift gates, steel, for Morganza Control Structure in Pointe Coupee Parish, Inv. 51-60, from Newport News Ship Bldg. & Drydock Co., Newport News, Va., **$916,559**. CD 10/17.

CONTRACTS AWARDED

† **South Dakota, Nebraska and Iowa**—U. S. Eng., 1709 Jackson St., Omaha 2, Neb., construct revetment in or immediately adjacent to Missouri River in Kenslers—Lower Sioux City Bends, Union Co., S. D., Dakota Co., Neb. and approx. 7 mi. upstream from Sioux City, Ia., Inv. No. CIVENG 25-066-51-44, to Connor & Stavely Constr. Co., 1805 Grand St., Kansas City, Mo., **$552,013**. Bids 11/10. CD 11/22, under LB.

AIRPORTS

BIDS ASKED

† **Neb., Fort Crook**—BARRACKS—B.A. 12/20—Strategic Air Command, Offutt Field, Fort Crook, men's barracks at Offutt Air Force Base. $200,000. Extended date. CD 10/23.

Que., Bagotville—GENERATING UNITS—B.A. 12/20—Canadian Commercial Corp., engrs., 70 Lyon St., Ottawa, Ont., supplying; erecting steam generating units at airport, for Govt. of Canda, National Defense Dpt. (AIR), Ottawa, Ont. Plans deposit $25.

† **Fla., Cocoa**—ELECTRICAL DISTRIBUTION SYSTEM—B.A. About 12/21—U. S. Eng., 575 Riverside Ave., Jacksonville, electrical distr. system in launching area, Long Range Proving Ground Division, U. S. Air Force, Cape Canaveral Brevard Co., about 20 mi. from here Serial No. Civeng 08-123-51-7

† **Fla., Key West**—LINE MAINTENANCE BLDG. etc.—B.A. 12/21—Dpt. Navy, Charleston Naval Base, Charleston, S. C. maintenance bldg. parking area and water lines, Naval Air Station NOY 22633, Spec. 25226. Extended date. Plans deposit $5. CD 11/15.

Fla., Tampa—AIRPORT TERMINAL—B.A. 12/21—Hillsborough County Aviation Auth., c/o M. Leo Elliott &

Eliot C. Fletcher, archts., Citizens Bldg., airport terminal. $300,000. CD 4/29/48.

† **Ga., Glynco**—UNDERGROUND CABLES—B.A. 12/21—Dpt. Navy, Charleston Naval Base, Charleston, S. C., laying underground cables at Naval Air Facility, NOY 23446, Spec. 25823. Extended date CD 11/9.

▲† **N. Y., Sampson**—AIR BASE—B.A. 12/21—U. S. Eng., 80 Lafayette St., New York, Zone 13, rehabilitation Samoson Air Force Base, No. Eng. 30-075-51-371. $3,000,000. Plans deposit $10.

Ont., North Bay—AIR FORCE DEVELOPMENT—B.A. 12/21—Canadian Commercial Corp., J. D. McCarthy, secy., 70 Lyon St., Ottawa, Royal Canadian Air Force Station Development, two bldgs., supply bldg anu 180-man barrack block. Plans deposit $100. Extended date. Kings, Coons, Phelan & Porter, 8 Bedford Rd., Toronto, engrs. CD 11/21, under Public Buildings.

LOW BIDDERS

† **Alaska**—OUTSIDE UTILITIES—U. S. Eng., Anchorage, Nov. 28, outside utilities at A.A.C.S. facilities, Inv. No. S95-507-51-30, from City Electric Co., Anchorage, **$532,382**. Est. $570,840.

† **Alaska**—OFFICERS QUARTERS—U. S. Eng., Anchorage, cancelled bids to have been opened Dec. 13, one 20-man bachelor officers' quarters at Eielson Air Force Base, and one 20-man bachelor officers' quarters at Ladd Air Force Base, Inv. No. S 95-507-51-39. **$500,000**. CD 11/24.

▲† **Alaska, Eielson Air Force Base**—HEATING AND POWER PLANT—U. S. Eng. (APO 942, c/o PM, Seattle, Wash.), Anchorage, Nov. 29, 2 boiler and one turbine-generator central heating and power plant, Inv. No. S95-507-51-22, from Peter Kiewit Sons Co. & Morrison-Knudsen Co., Inc., 1300 Aloha St., Seattle, Wash., **$4,224,445**. Est. $4,716,150. CD .11/10.

PUBLIC BUILDINGS

BIDS ASKED

▲ **Mass., Worcester**—HOUSING—B.A. 12/18—City of Worcester Housing Auth., City Hall, 2 story, bsmnt., brick, garden type housing Proj. PHA 12-1, $5,000,000. Plans deposit $100. Glasser Gray, 105 Newbury St., Boston, archt. CD 3/30.

Ill., North Lake Village—SCHOOLS, etc.—B.A. 12/19—Cook County School Dist. 87, 225 S. 46 St., Bellwood, Reilly school and gymnasium; Whittier School and gymnasium. $300,000. Edw. Grey Halsted, 840 N. Michigan St., Chicago, Zone 11, archt.

Kan., Eureka—COURT HOUSE—B.A. 12/19—Greenwood Co., court house. $300,000. T. W. Williamson, National Bank of Topeka Bldg., Topeka, and V. H. Loebsack & Assoc., 1243 Topeka Blvd., Topeka, archts. CD 10/30/45.

N. J., Woodbridge—HOUSING—B.A. 12/19—Housing Auth., 1 Main St., 17 two story, frame, brick veneer row houses and 1 administration and boiler room bldg. Plans deposit $75. Murray Leibowitz, 313 State St., Perth Amboy, archts.

† **N. Y., Brooklyn**—TRAINING CENTER ALTERATIONS—B.A. 12/19—Pub. Wks. Office, Third Naval Dist., 90 Church St., New York, Zone 7, repairs, alterations, Naval Reserve Training Center, 52 St., NOY 23444, Spec. No. 25811. Plans deposit $10.

† **N. Y., Fort Jay**—FAMILY QUARTERS—B.A. 12/19—U. S. Eng., 80 Lafayette St., New York, Zone 13, family quarters. Plans deposit $15. Extended date. CD 11/13.

N. C., Monroe—HOSPITAL—B.A. 12/19—Union County Memorial Hospital, Monroe, 100-bed hospital. Plans deposit $50 general constr. $25 mechanical work. J. N. Pease & Co., Inc., 119½ E. 5 St., Charlotte, engr. and archt. CD 2/20.

O., Centerville—SCHOOL—B.A. 12/19—Bd. Educ., Washington Twp. R. L. Woolpert, pres., Centerville, 2 story school addn. Plans deposit $10. Walker, Norwick & Templin, American Bldg., Dayton, Zone 2, archts. CD 8/23/45.

O., Upper Arlington—SCHOOL—B.A. 12/19—Bd. Educ., 2100 Devon Rd., school, Tremont and Ridgeview Rds. Benham, Richards & Armstrong, 167 E. State St., Columbus, archts. CD 11/16.

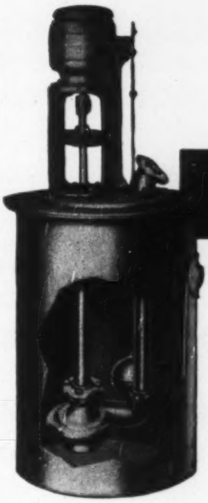
▲ **Ill., Granite City**—HOUSING—B.A. 12/20—Granite City Housing Auth., Roy Huff, chn., Edwards St. and Nameoki Rd., Kirkpatrick Homes Housing Proj. Ill. 5-2 incl. 300 units and admin. alterations and addns. Plans deposit $50. John D. Falvey, 316 N. 8 St., St. Louis 1, Mo., engr. Wischmeyer & Lorenz, 911 Locust St., St. Louis 1, Mo., archts. CD 3/27.

▲ **Ill., Peoria**—HOUSING—B.A. 12/20—Peoria Housing Auth., Peoria, twenty, 154 unit brick veneer Harrison Homes addn. $1,711,000, Gregg & Briggs, First National Bank Bldg., archts. CD 10/2.

Md., Baltimore—COURT HOUSE—B.A. 12/20—City, Bureau Bldg. Constr., 410 Municipal Bldg., Zone 2, (1st phase) 6 story court house addn., alterations, Total est. $800,000. Plans deposit $100. Bids 10/4 rejected. Hal A. Miller & Assoc., 2118 Maryland Ave., Zone 18, archts. Egli & Gompf, Inc., 1019 N. Calvert St., mech. engr. L. P. Kooken Co., 2017 Maryland Ave., struct. engr. CD 10/10.

▲ **Md., Baltimore**—INFIRMARY—B.A. 12/20—City, Bureau Bldg. Constr., 410 Municipal Bldg., Zone 2, rebuilding existing 3 story 75x674 ft., infirmary bldg. to be increased to 5 story, bsmnt., at City Hospital, Eastern Ave. $3,500,000. Plans deposit $100. Lucius R. White, Jr., 10 W. Chase St., archt. Van Rensselaer Saxe, 100 W. Monument St., struct. engr. Egli & Gompf, Inc., 1019 N. Calvert St., mech. engr. CD 1/23.

Mich., Northville—DORMITORY—B.A. 12/20—State, A. N. Langius, dir. State Bldg. Dpt., 115 State Office



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Bldg., Lansing, 2 story, bsmnt., rein.-con. dormitory, Northville State Hospital, O'Dell, Hewlett & Luckenbach, 2317 Dime Bldg., Detroit, archts. CD 5/8/46.

Mich., Oshtemo—STORAGE—B.A. 12/20—State, A. N. Langius, dir., State Bldg. Dpt., 115 State Office Bldg., Lansing, 1 story, bsmnt., concrete storage bldg., Pinecrest State Santorium, $85,000.

▲ **N. J., Trenton**—HOUSING—B.A. 12/20—Trenton Housing Auth., 875 New Willow St., 102 apartments on tract along John Fitch Way. **$2,000,000.** CD 5/19.

N. C., Winston-Salem—HOUSING—B.A. 12/20—Winston Salem Housing Auth., 1205 Reynolds Bldg., 178 dwelling units and comm. bldg., N. C. 12-2. Plans deposit $25. Extended date. Northrup & O'Brien, Reynolds Bldg., archts. CD 11/15.

O., Toledo—SCHOOL—B.A. 12/20—Bd. Educ., Wm. E. Hallauer, asst. supt., Southard Ave., Longfellow School addn., alterations, 4112 Jackman Rd. Plans deposit $5. Peterson, Hoffman & Barber, Spitzer Bldg., archts. and engrs. CD 11/23/49.

O., Van Wert—SCHOOLS—B.A. 12/20—Bd. Educ., Van Wert, schools. $844,000. CD 5/9.

S. C., Florence—HOSPITAL—B.A. 12/20—Florence—Darlington Tuberculosis Hospital, c/o Lafaye, Lafaye & Fair, archts., 1226 Sumter St., Columbia, tuberculosis sanatorium. $600,000. CD 2/21/49.

Tenn., Clarksville—SCHOOLS—B.A. 12/20—City, City Hall, 2 schools, 1 on Grenwood Ave. and other at Mericourt. Speight & Hibbs, Clarksville, archts. CD 1/27/47.

Wis., Madison—HOME ECONOMICS—B.A. 12/20—University of Wisconsin, Madison, 4 story., bsmnt., 49x112 ft., home economics addn. Plans deposit $25. Weiler & Strang, 114 N. Carroll St., archts. CD 11/11/43.

Wis., Rhinelander—SCHOOL—B.A. 12/20—Bd. Educ., 1 story, bsmnt., 66x266 ft., concrete, brick, stone school. Plans deposit $50. Foeller, Schober, Berners, Safford & Hang, Green Bay, archts.

Que., Quebec City—WAREHOUSE—B.A. 12/20—R. Fortier Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., warehouse. Plans deposit $100. G. G. Brault, c/o owner, archt. CD 3/30.

† **Mass., Fort Devens**—BUILDINGS—B.A. about 12/21—U. S. Eng., P. O. Box 2316, Boston, Zone 7, renovating 2 bldgs., Eng. 19-035-51-72. Plans deposit $25.

Mich., Benton Harbor—HOUSING—B.A. 12/21—City, Elden Burzbaugh, chn. City Comn., City Hall, 94 brick family housing units, USPHA Mich. 10-1, Conkey Field, $900,000. Extended date. Leinweber, Yamasaki & Hellmuth, 948 Penobscot Bldg., Detroit, archts. CD 11/20.

N. C., Chapel Hill—HOSPITAL—B.A. 12/21—State Sanatorium for Treatment of Tuberculosis, Dr. J. S. Willis McCain, Gerrard Hall, Chapel Hill, 3 story, 100-bed hospital. Plans deposit $50, general, $25 each mechanical. F. Carter Williams, Masonic Temple Bldg., Raleigh, archt. CD 10/20.

Wis., Delavan—SCHOOL—B.A. 12/21—Bd. Educ., 1 story E shaped school: $420,000. Law, Law, Potter & Nystrom, 121 S. Pinckney St., Madison, archts. CD 11/14.

Ont., Ottawa—GYMNASIUM—B.A. 12/21—H. Pullen, bus. administrator, Collegiate Institute Bd., 180 Bay St., gymnasium, etc. Lisgar Collegiate, Lisgar St. Approx. $485,000. Plans deposit $25. J. A. Ewart, 165 Sparks St., archt. CD 4/13.

Fla., Orlando—SCHOOL—B.A. 12/22—Orange County Bd. P. Instruction, Orlando, Junior Elementary Colored School, in Apopka. $300,000. Richard Boone Rogers, Orlando, archts. CD 5/9/49.

Ind., Indianapolis—FOOD SERVICE—B.A. 12/22—J. A. Franklin, vice-pres. Indiana University, Bloomington (1) general contract, (2) elevator and dumbwaiter (3) food service equip., (4) heating ventilating, (5) plumbing and drainage (6) electric for food service bldg. at Indiana University Medical School. Plans deposit for (1) $50; for (2), (3), (4), (5), (6) $25 each. Ammerman, Davis & Sons, K of P Bldg., Indianapolis, engrs. Edward D. James, 122 E. Michigan St., archt. CD 10/20.

▲ **Ore., Eugene**—HIGH SCHOOL—B.A. 12/28—Eugene School Bd., Eugene, 100x300 ft. high school. $3,000,000. Extended date. CD 11/16.

Puerto Rico, San German—HOSPITAL, etc.—B.A. 12/28—Jorge J. Jimenez, comrs. Interior of Puerto Rico at office Bd. Awards, Dpt. Interior, Santurce 42-bed municipal hospital and health center. Plans deposit $50.

LOW BIDDERS

Calif., Davis—HOME ECONOMICS—Bd. Regents University of California, 2288 Telegraph St., Berkeley, Nov. 28, general contract, 2 story, 45,000 sq. ft., rein.-con. Home Economics Bldg. and auditorium, from Erbentraut & Summers, 696 Pennsylvania St., San Francisco, **$551,000.** CD 10/17.

Calif., Hawthorne—SCHOOL—Sentinela Valley Union High School Dis. Nov. 21, reinforced brick Hawthorne High School, El Segundo and Inglewood Blvds., from Milton Kaufman Constr. Corp., 2918 W. Compton Blvd., Gardena, **$869,000.** Est. $500,000. CD 11/3.

▲ **Calif., Imola**—RECEIVING AND TREATMENT UNIT—State Div. Architecture, P. Wks. Bldg., Sacramento, Nov. 28, general contract 2 story part bsmnt., 206,000 sq. ft., rein.-con. receiving and treatment unit at Napa State Hospital, from H. Mayson, 2623 Alida St., Oakland, **$2,397,533*****plumbing from J. A. Fazio, 686 4 St., Oakland, **$399,999*****heating, ventilating, refrigeration, from Kenneth Fraser Co., Inc., 707 S. Arroyo Parkway, Pasadena, **$415,990.** CD 11/1.

Calif., Los Angeles—COMPENSATION INSURANCE FUND—State Div. Architecture, P. Wks. Bldg., Sacramento, Nov. 21, general contract 3 story, bsmnt., 53,800 sq. ft., rein.-con. Compensation Insurance Fund bldg., from C. W. Driver, Inc., 3416½ W. 1 St., **$617,400.** CD 10/23. 10/24.

Calif., Sacramento—SCHOOL—Arcade Elementary School Dist., Rte. 7, Box 3685, Nov. 28, Del Paso Manor School, from Lawrence Constr. Co., 3020 V St., **$546,749.** CD 11/9.

Calif., San Diego—SCIENCE and CAFETERIA—San Diego Unified School Dist., 825 Union Ave., Nov. 21, 2 story, rein.-con. science and cafeteria at LaJolla High School, from L. C. Anderson Co., 3040 Hancock St., **$609,737.** CD 11/1.

Calif., San Francisco—SCHOOL—Dpt. P. Wks., City Hall, general contract 2 story, rein.-con., structural steel Miraloma School, from Monson Bros., 475 6 St., **$867,100.** CD 10/31.

▲ **Ill., Chicago**—HOUSING—Chicago Housing Auth., 608 N. Dearborn St., Zone 5, apartments, 1 story office, one 14 story bldg., three 7 story bldgs., all rein.-con., brick, from Jacobsen Bros., 20 N. Wacker Dr., Zone 6, **$2,322,000.** CD 11/28.

Ill., Villa Park and Lombard—SCHOOLS—School Dist. 45, Villa Park, Nov. 19, Westmore, Washington Lincoln, and Franklin Schools addns., all 2 story from Enger Bros., 4910 W. St. Paul St., Chicago, Zone 39, **$728,467.** CD 11/9.

Kan., Wichita—HOSPITAL—Sedgewick Co., Nov. 14, general contract hospital, from Moreland Constr. Co., 140 Laura St., **$610,770.** CD 11/9.

Ky., Lexington—HOSPITAL—Commonwealth of Ky., Div. Purchase, State Office Bldg., Frankfort, Nov. 16, general contract negro ward and Eastern State Hospital addns., from Perkins & Gray, 1125 Greenup Ave., Ashland, **$873,450.** CD 10/31.

▲ **Mass., Middleboro**—SCHOOL—Town of Middleboro Bldg. Comn., H. J. Goodale, chn., Nov. 22, high school, from R. R. Jacobucci, Inc., 28 Dayton St., Quincy, **$1,107,545,** J. Williams Beal & Sons, 185 Devonshire St., Boston, archts. Mark Linenthal, 16 Lincoln St., Boston, engr.

Minn., Minneapolis—HOSPITAL—University of Minnesota, Main Campus, Nov. 29, furnishing, fabricating, erecting 2,000 tons structural steel for 22 story Mayo Memorial Medical Center, from American Bridge Co., 629 Southeast 2nd St., **$514,740.** CD 11/22.

Minn., Rochester—SERVICE CENTER—State, Dpt. Admin State Capitol St. Paul, Nov. 21, general contract service center bldg. at State Hospital from Stocke & Olson, 115½ S. W. Third Ave., **$833,000.** CD 11/16.

▲ **Minn., Waseca**—SCHOOL—University of Minnesota, R. S. Callaway, purch. agt., 323 Admin. Bldg., Main Campus, Minneapolis, Nov. 28, general contract 505x535 ft. School of Agriculture at Waseca, from G. E. Carlstrom Constr. Co., Mankato, **$1,076,000.**

▲ **Neb., Omaha**—HOUSING—Omaha Housing Auth., 5529 S. 30 St., Nov. 29, two housing projects, from Sherry-Richards Co., 201 N. Wells St., Chicago, Ill., **$4,389,730.** CD 11/6.

N. Y., Morrisville—AUDITORIUM—Bureau Contracts & Accounts, Albany, Nov. 29, auditorium and gymnasium and central heating plant, from Thomas C. Brown Co., Inc., Box 982, Schenectady, **$642,300.** CD 11/13.

▲ **N. Y., New York**—POWER PLANT IMPRVS.—Bd. Transportation, 250 Hudson St., Zone 13, Dec. 4, two 450,000 lb. per hr. steam boilers for 74 Street Power Plant from Combustion Eng. Co., Inc., and Super Heater, Inc., 200 Madison Ave., Zone 16, **$3,303,016.**

▲ **N. Y., New York**—HOUSING—New York City Housing Auth., 63 Park Row, Zone 7, Dec. 5, foundations and appurtenances for Edenwald Houses (Proj. No. NY 5-19) in area bounded by Laconia Ave., Grenada Pl., E. 233 St., Baychester and Schieffelin Aves. and E. 225 St., Bronx Boro, from Rizzi Constr. Co. Inc., 101 Park Ave., Zone 7, **$2,323,800.** CD 11/28.

N. C., Eagle Springs—SCHOOL—State Bd. Correction & Training, Raleigh, rejected bids Nov. 14 school. L. B. **$693,673.** CD 11/22, under LB.

▲ **N. C., Goldsboro**—HOUSING—Goldsboro Housing Auth., Wiley Smith, exec. dir., Court Room, City Hall, Dec. 1, housing, 138 units for Whites, 137 units for Negroes, from T. A. Loving Co., Bank of Wayne Bldg., **$1,852,240.** CD 11/9.

N. C., Eagle Springs—BUILDINGS, etc.—State Bd. Correction & Training, Raleigh, Nov. 14, new buildings and associated work. Contr. 1, from J. L. Coe Constr. Co., Builders Bldg., Charlotte, **$693,673.** J. N. Pease & Co., Inc., 119½ E. 5 St., Charlotte, archt. and engr.

N. C., Lumberton—HOSPITAL—Bd. Trustees, Robeson County Memorial Hospital, R. H. Livermore, pres., Lumberton, Nov. 29, general contract, 120-bed hospital, from Crosland Constr. Co., 1623 Harden St., Columbia, S. C., **$789,957.** CD 10/31.

O., Alliance—HOSPITAL—City, general contract hospital, from Paul Kintz Constr. Co., Alliance, **$722,068.** CD 3/9.

▲† **O., Cincinnati**—RESEARCH CENTER—Pub. Bldgs. Admin., 18 and F Sts. N. W., Wash. 25, D. C., Nov. 30, research center for U. S. Public Health Service, from Grove, Shepherd, Wilson & Kruge, 247 Park Ave., New York, N. Y., **$3,694,500.** CD 11/24.

▲ **Pa., Hollidaysburg**—DISTURBED PATIENTS—General State Auth., 18 and Herr Sts., Harrisburg, rejected bids Oct. 11, disturbed patients bldg. at Hollidaysburg State Hospital, general contract, incl. underground connecting tunnel, L. B. **$1,485,000** and general contract without tunnel. L. B. **$1,393,000.** Project cancelled. CD 10/16, under LB.

▲ **R. I., Providence**—LIBRARY—City, City Hall, Central Public Library addn., alterations, Washington, Empire and Fountain Sts., from E. Turgeon Constr. Co., Inc., 42 Weybossett St., **$1,679,449.** CD 10/9, under LB.

Tenn., Nashville—DORMITORY—State Dpt. Educ., Nashville, Nov. 30, girls dormitory at State Agricultural & Industrial College from Albert Del Favero, 1810 W. End Ave., **$518,100.** CD 11/20.

▲ **Tenn., Nashville**—OFFICE—State of Tennessee, Nashville, Dec. 5, state office bldg., from Foster & Creighton Co., American Natl. Bank Bldg., **$7,576,000.** Est. $6,000,000. Hart & McBryde, 2417 W. End Ave., archts. CD 10/31.

▲ **Tex., Corpus Christi**—HOUSING—Corpus Christi Housing Auth., 3701 Ayres St., rejected bids Nov. 3, 200 (Negro) low rental housing units, L. B. **$1,779,436.** Est. $1,200,000. Will re-advertise. CD 11/16.

Tex., Nederland—SCHOOL—Nederland Independent School Dist., Nederland, Nov. 15, high school, from Schneider Constr. Co., 3004 W. Dallas St., Houston, **$898,990.** Maurice E. Walmer, Gilbert Bldg., Beaumont, archt.

▲† **Wash., Richland**—HOUSING—Atomic Energy Comn., Richland, Dec. 4, 300 housing units, Inv. AEC-108, from L. E. Baldwin, Inc., 1103 N. 36 St., Seattle, Zone 3, **$3,297,000.** Est. $4,013,171. CD 11/22.

▲ **W. Va., Hopemont**—HOSPITAL—Bd. Control, Capitol Bldg., Charleston, Proj. 11, 42x248 ft. and 142x182 ft., L-shaped brick on tile tubercular bldg., Hopemont State Hospital, from Lynch Pugh & Corson Inc., 75 University Ave., Morgantown, **$1,483,300.** CD 11/2.

CONTRACTS AWARDED

▲† **Ala., Muscle Shoals**—PLANT—Tennessee Valley Auth., New Sprankle Bldg., Knoxville, Tenn., design and construct phosphorus research plant, to Kellex Corp., 120 Wall St., New York 5, N. Y. Over **$2,000,000.**

Calif., Needles—SCHOOL—Needles Elementary School Dist., Needles, 3 schools, 2 in Needles, 1 in Essex, to J. E. Burrell & Sons, 522 San Francisco Ave., Long Beach, **$634,100.** Est. $574,835. Bids 10/10, awarded 11/13. CD 10/24, under LB.

Calif., Rivera—SCHOOL—Rivera School Dist., 8910 E. Slauson Ave., reinforced brick Orange Ave. School, to Steed Bros., Box 350, Alhambra, **$569,500.** Bids 11/16, awarded 11/28. CD 11/24, under LB.

Calif., San Diego—SCIENCE AND CAFETERIA—San Diego Unified School Dist., 825 Union Ave., 2 story, rein.-con. science and cafeteria bldg. at LaJolla High School, to L. C. Anderson Co., 3040 Hancock St., **$579,630.** Bids 11/21. CD 11/29, under LB.

Conn., Middletown—LAUNDRY, etc.—State, R. S. Thatcher, State Capitol, Hartford, laundry and service bldg., State Hospital, B.A. 1-70, to H. Wales Lines Co., 124 State St., Meriden, **$669,956.** Bids 10/23, awarded 11/17. CD 10/27, under LB.

Conn., Storrs—PHARMACY—State, State Capitol, Hartford, College of Pharmacy Bldg., B/A-D-134. University of Connecticut to Modelci & Benvenuti, 16 Elm St., New London, **$500,000.** Bids 11/6, awarded 11/15. CD 11/22, under LB.

▲ **Fla., Sanford**—HOUSING—Sanford Housing Auth., c/o Elton J. Moughton archt., Sanford, 125 housing units, to Bradford Builders, Inc., 1101 Lincoln Rd. Bldg., Miami Beach, **$1,041,000.** Bids 11/28. CD 10/27.

Ill., Palatine—SCHOOL—District 211, 150 E. Wood St., 2 story, bsmnt., steel, brick, stone, concrete high school addn., to John Traff Constr. Co., 3735 N. Clark St., Chicago, Zone 14, **$830,000.** Bids 10/4, awarded 11/14. CD 10/18, under LB.

Kan., Lawrence—MEMORIAL UNION—State Bd. Regents, State House Topeka, general contract expansion Student Memorial Union Bldg. at University of Kansas, to Basil Green, Lawrence, **$940,500.** Bids 11/14 awarded 11/20. CD 11/28, under L. B.

La., Abbeville—COURT HOUSE—Vermillion Parish Police Jury, Court House, to Romero & Theall, Youngsville, **$630,000.** Bids 11/21. CD 10/17.

▲ **Mass., Holyoke**—SCHOOL—City, Bd. P. Wks., City Hall, Highland Junior High School, Northampton St., to M. J. Walsh & Sons, Inc., 14 Shawmut Ave., **$1,266,328.** Bids 10/24, awarded 11/22. CD 10/31, under L.B.

Mass., Milton—SCHOOL—Town of Milton, E. E. Erickson, chn. Bldg. Comn., school, off Canton Ave., to Vara Constr. Co., 718 Huntington Ave., Boston, **$763,000.** CD 11/20 under L. B.

Mass., Revere—HOUSING—City of Revere Housing Auth., Police Station, Pleasant St., 84 housing units, to Palmer Zoppo Co., 842 Providence Hy., Norwood, **$964,644.** CD 11/20, under L. B.

▲ **Mich., Ann Arbor**—CLASSROOM—University of Michigan, Robert P. Briggs, vice pres., Admin. Bldg., Proj. 15, Angell Hall addn., alterations, 8 story, brick, steel addn. conference unit, 4 story classroom unit, interconnecting addn., to Bryant & Detwiler Co., 2304 Penobscot Bldg., Detroit, approx. **$1,500,000.** Bids 11/8. CD 10/18.

N. Y., Auburn—APARTMENT—Auburn Municipal Housing Auth., Auburn, general contract 118 unit garden apartment, Thornton Ave. and Garrows St., to William E. Bouley Co., Inc., 148 Genessee St., **$986,074.** Bids 11/9. CD 10/26.

▲ **N. C., Fayetteville**—HOUSING—Fayetteville Housing Auth., 57 Cross Creek Court, Grove St., general contract, Housing Project N. C. 9-3, to H. L. Coble Constr. Co., Greensboro, **$1,246,800.** Bids 10/17. CD 10/25, under LB.

▲ **N. C., Wilmington**—HOUSING—Wilmington Housing Auth., c/o contractor, housing units, to Skinner & Ruddock, King St. Exten., Charleston, S. C., **$1,694,000**. Bids 11/30. CD 11/9.

Okla., Norman—GEOLOGY and MINERAL INDUSTRIES—Board of Regents, Norman, completion geology and mineral industries bldg. at University of Oklahoma, to Harmon Constr. Co., 100 S. Indiana St., Oklahoma City, Zone 4, **$612,078**. Est. $600,000. Awarded 11/25. CD 11/13, under LB.

Pa., Clarks Summit—PATIENTS—General State Auth., 18 and Herr Sts., Harrisburg, general contract building for tubercular patients at Clarks Summit State Hospital, to Tabone & Barberra, 186 N. Main St., Pittstown, **$786,600**. Bids 10/11, awarded 11/16. CD 10/16, under LB.

▲ **Tenn., Knoxville**—HOUSING—Knoxville Housing Auth., 1701 Jourolman Ave., Western Heights Housing addn., to Foster & Creighton Co., American Natl. Bank Bldg., Nashville, **$3,734,000**. Bids 11/22. CD 11/30, under LB.

Tex., Nederland—SCHOOL—Nederland Independent School Dist., Nederland, Senior High School, to Schneider Constr. Co., Box 13157, Houston, **$898,990**. Bids 11/15. CD 11/22, under LB.

† **Wash., Richland**—HOUSES—General Electric Co., prime contractor to U. S. Atomic Energy Comn. for operation of Richland and Hanford Works, rehabilitation 600 prefabricated houses, to L. E. Baldwin & F. Dunham, 3872 50 Ave. N.E., Seattle, **$652,080**. Bids 10/26. CD 11/2, under LB.

Man., Norway House—HOSPITAL—Govt. of Canada, Dpt. National Health & Welfare, Ottawa, Ont., hospital, to Wyatt Constr. Co. Ltd., 383 McMillen Ave., Winnipeg, **$719,399**. Bids 11/22. CD 11/1.

▲ **Ont., Toronto**—HOSPITAL—New Mount Sinai Hospital, Building Com., 105 King St. W., 12 story, with 4 story and 2 story wings, 213x230 ft., structural steel, brick, stone hospital, University Ave. and Elm St., to George Hardy Ltd., 163 Wicksteed Ave., approx. **$4,000,000**. Bids 11/17, awarded 12/4. CD 10/24.

COMMERCIAL BUILDINGS

BIDS ASKED

Que., LaMalbaie—CHURCH—B.A. 12/19—G. Desmeulles, archt., 226 St. John St., Quebec City, 72x200 ft., rein.-con., stone church, for Roman Catholic Parish of LaMalbaie, LaMalbaie, $300,000.

▲ **Okla., Enid**—HOSPITAL—B.A. 12/22—St. Mary's Hospital, Enid, 4 story hospital addn. $1,000,000. Plans deposit $25. Lorentz Schmidt, 1832 E. 2nd St., Wichita, Kan., archt. CD 7/20.

Ark., Brinkley—HOSPITAL—B.A. About 12/29—Mercy Hospital, c/o Brueggeman, Swaim & Allen, archts., Gazette Bldg., Little Rock, hospital. $500,000. CD 4/7.

Fla., Daytona Beach—CHURCH—B.A. 12/30—Presbyterian Church, c/o Harry M. Griffin, archt., Box 1671, church.

Ariz., Flagstaff—HOUSING—Bids Asked—South Pacific Div., Oakland Army Base, Oakland, 14, Calif., construct, manage and finance 72 housing units, Navajo Ordnance Depot.

Ind., Hammond — APARTMENT — Bids Asked — Owner, Woodlawn and 169 Sts., 2 story 41 unit apartment, 4 stores on ground floor. $300,000. Turner & Turner, 5246 Hohman St., archts.

Tex., Garland—SHOPPING CENTER—Bids Asked—Rae E. Skillern & Assoc., 520 N. Pearl St., Dallas, shopping center. $600,000. CD 11/29.

SOON LETS CONTRACT

▲ **Mass., New Bedford**—HOSPITAL—St. Luke's Hospital, 101 Page St., soon lets contract, 4 story, bsmnt., brick, steel, concrete hospital addn., alterations, 1 story top present bldg. $1,500,000. Curtin & Riley, 45 Newbury St., Boston, archts.

Mich., Lansing—DEPARTMENT STORE—J. C. Penney Co., lessee, Michigan and Washington Sts., soon lets contract 4 story, bsmnt, steel, brick concrete department store, $850,000. Gillte & Bell, 207 E. 32 St., New York, N. Y., archts. C. J. Munson, Bush Bldg., assoc. archt. CD 11/14.

Neb., Omaha—APARTMENT—Omaha Educational Assn., F. C. Heinisch, secy., 927 City Natl. Bank Bldg., soon lets contract apartment. $750,000. CD 11/24.

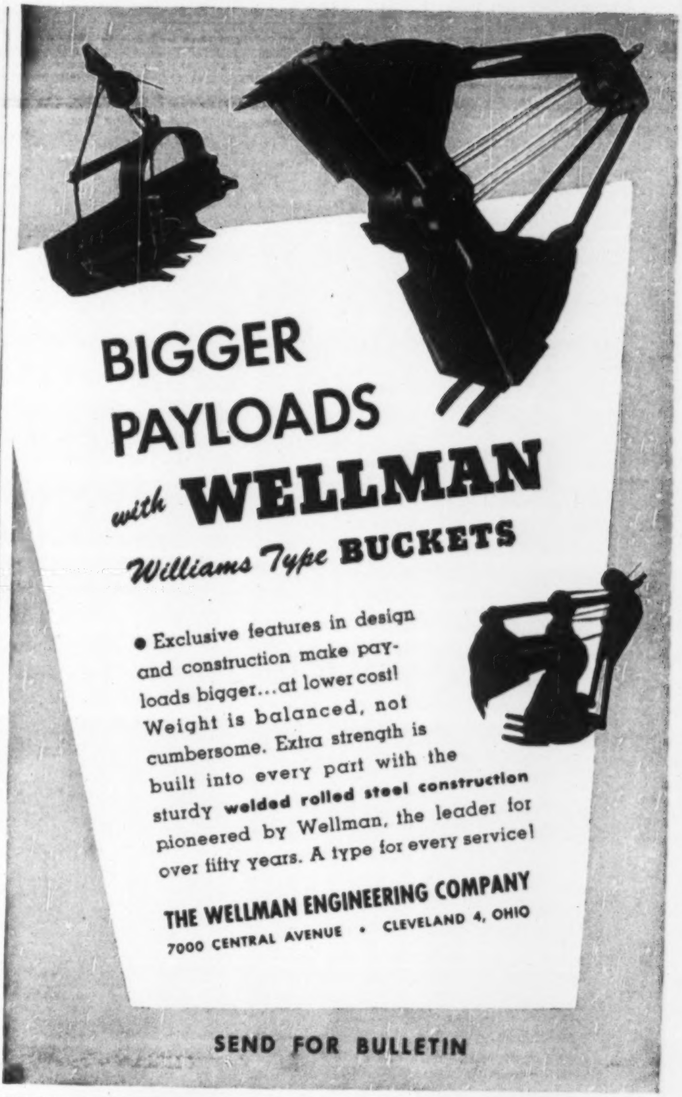
Tex., Corpus Christi—HOSPITAL—Spohn Hospital, c/o Mother Benjamin, 1436 3 St., 5 story, steel, brick, stone hospital addn., $600,000. Wade, Gibson & Martin, Prof. Bldg., archts. CD 11/1.

▲ **Tex., Dallas**—OFFICE—Lacy Building Corp., 1604 Commerce St., soon lets contract 20 story, bsmnt. office. $3,000,000. Wilson, Morris & Moore, 4605 Montrose St., and H. E. Bovay, N. Esperson Bldg., Houston, engrs. CD 12/4.

▲ **Tex., Temple**—BANK and OFFICE—First Natl. Bank, Temple, soon lets contract 10 story bsmnt., 90x110 ft. bank and office. $1,000,000. Wyatt C. Hedrick Co., 1005 First Natl. Bank Bldg., Fort Worth, Zone 1, archt. Buttrill & Turley, Temple, assoc. archts. CD 11/14.

LOW BIDDERS

Colo., Denver—CIVIC THEATER—Frederic Bonfils Foundation, Security Life Bldg., general contract civic theater, from Mead & Mount Constr. Co., Denver National Bank, **$606,000**. John K. Monroe, Security Life Bldg., Denver, engr.



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▲ **Alta., Edmonton**—HOTEL—Max Crystall & Assocs., c/o Corona Hotel, Edmonton, 10 story, 213 room, rein.-con., stone hotel, 102 Ave. and 100 St., from Christensen & Macdonald, 612 Tegler Bldg., approx. **$1,500,000.** CD 9/7.

CONTRACTS AWARDED

▲ **Ark., North Little Rock**—RESIDENCES—North Shore Housing Corp., North Little Rock, 150 residences, to W. C. McMinn, 3323 Pike St., **$1,282,000.**

▲ **Calif., Los Angeles**—MEDICAL OFFICE—Wilshire Medical Properties, Inc., 2010 Wilshire Blvd., 10 story, steel medical office bldg., to T-S Construction Engineers, Inc., Ford J. Twaits Co., Morrison-Knudsen Co. Inc., 449 S. Beaudry St., **$2,000,000.** Earl Heitschmidt, 449 S. Beaudry Ave., archt.

Calif., Oxnard—DWELLINGS—Fremont Square Tract 1, 8825 Olympic Blvd. Beverly Hills, 88 frame, stucco dwellings, to E. A. Kaiser Co., 8825 Olympic Blvd., Beverly Hills, **$616,000.** Edwin D. Martin, 8825 Olympic Blvd., Beverly Hills, archt.

Calif., Rivera—DWELLINGS—Rose Pass Corp., 945 N. LaCienega St., Los Angeles, 118 frame, stucco dwellings. Owner builds, **$721,500.**

Colo., Denver—HOSPITAL, etc.—St. Lukes Hospital, 19 and Pearl Sts., general contract 5 story T-shaped hospital addn. Top of T 56x199 ft., and base of T 56x97 ft., to J. Kirchhof Constr. Co., 700 Lawrence St., **$833,495.** Bids 11/1, awarded 11/23. CD 11/15.

Fla., Miami—HOMES—F. C. Martin, c/o contractor, 72 homes, to Blue Ribbon Constr. Co., 171 Hialeah Dr., Hialeah, approx. **$500,000.**

Fla., Miami Beach—HOTEL—Thomas Jefferson, Inc., c/o contractors, hotel, to Taylor Constr. Co., Box 180, Route 1, **$800,000.**

Ky., Louisville—RESIDENCES—Trinity Homes Corp., 1526 S. 7 St., ninety 1 story residences, separate contracts, **$720,000.** Ralph S. Twitcheil & Paul Rudolph, Sarasota, Fla., archts.

Md., Baltimore—RESIDENCES—Bowers Constr. Co., 5608 Belle Ave., seventy-four 2 story, brick residences, 5600 block Belle Ave., 5600 block Cadillac Ave., 5600 block Chrysler Ave., 3800 block Parkview Ave., separate contracts. **$600,000.** CD 11/6.

Mass., Andover—GYMNASIUM—Phillips Academy, Salem St., gymnasium, to Edmund J. Rappoli Co., Inc., 515 Massachusetts Ave., Cambridge, **$900,000.** Bids 10/18. CD 10/20.

Mass., Peabody—RESIDENCES—North Shore Builders, Inc., 6 Pleasant St., Malden, ten 1½ story, basmnt., 32x24 ft. residences, Lynfield St., separate contracts, **$700,000.**

▲ **Mich., Detroit**—HOTEL—Bagley First State Corp., Frank P. Celeste and O. W. Schroeder, Bagley Ave. and First St., 15 story, brick, steel apartment hotel, own forces, **$3,000,000.**

▲ **N. J., Millburn**—OFFICE—Chubb & Son, 90 John St., New York, N. Y., 90,000 sq. ft. office, to Walter Kidde Constructors, Inc., 140 Cedar St., New York, N. Y., Approx. **$1,000,000-$2,000,000.**

N. M., Albuquerque—HOSPITAL—Bataan Memorial Methodist Hospital, 1621 E. Central Ave., general contract 115-bed masonry hospital, concrete cassion, pier frame, steel frame, to Robert E. McKee, P. O. Box 1706, Santa Fe, **$849,900.** Bids 10/11. CD 11/9, under LB.

N. Y., Hewlett—APARTMENT—George B. Rabinor, c/o J. J. Glaster & Sons, archt., 225 W 57 St., New York, Zone 19, garden apartment project on 3 acre tract, Broadway and Everit Ave. Owner builds. Approx. **$700,000.**

N. Y., Glendale—SCHOOL—St. Pancras Roman Catholic Church, 68-20 Mytle Ave., religious school, Mytle Ave. and 68 St. to Veit & Co., Inc., 260 Devoe St., Brooklyn, Zone 11, Approx. **$600,000.** CD 9/22.

Tenn., Nashville—OFFICE—Methodist General Bd. Educ., c/o contractor, office, to W. F. Holt & Sons, 1531 Demonbreun St., **$879,949.** Bids 7/28. CD 8/8, under LB.

Tex., Edna—HOUSING—R. F. Beeler, 3814 Palm St., Houston, housing. Owner builds. Approx. **$550,000.** CD 11/21.

N. Y., New York—CONVENT, etc.—Convent of Mary Reparatrix, Inc., 14 E. 3 St., convent and retreatants' house 7-13 E. 28 St. and 8-16 E. 29 Sts., to White Constr. Co. Inc., 95 Madison Ave., Approx. **$850,000.** CD 3/2.

N. Y., New York—APARTMENT—Greystone 38 Corp., 16 Court St., Brooklyn, 6 story apartment, Greystone Ave. and 240 St., separate contracts. **$774,000.** CD 9/22.

N. Y., New York—APARTMENT—Renee Operating Corp., 16 Court St., Brooklyn, Zone 2, 6 story apartment, Barnes Ave., north of Brady Ave., separate contracts. **$576,000.** CD 9/22.

N. C., Charlotte—NURSES RESIDENCE—Presbyterian Hospital, Inc., John C. Erwin, chn. Bd. Trustees, 200 Hawthorne Lane, nurses residence, to J. A. Jones Constr. Co., 209 W. 4 St., **$643,800.** Bids 10/20. CD 10/31, under LB.

Pa., Phila.—RESIDENCES—Crestpark Homes, c/o Earl Cohan, Market St., Natl. Bank Bldg., residential development, Rumford Rd., separate contracts. Approx. **$648,000.**

R. I., Woonsocket—HOSPITAL—Woonsocket Hospital, C. U. Christiansen, chn. Bldg. Comn., 1210 Union Trust Bldg., Providence, 4 story, bsmnt., 50x170 ft. brick hospital addn., alterations, Cass Ave. to Volpe Constr. Co., 54 Eastern Ave., Malden, Mass., **$937,341.** Bids 10/3. CD 10/13, under LB.

Tenn., Nashville—HEADQUARTERS—General Bd. Evangelism of Methodist Church, 1908 Grand Ave., 2 story, 110x221 ft. national headquarters bldg., 1908 Grand Ave., to The Rock City Constr. Co., 135 4 Ave. N., **$765,000.** Hart, Freeland & Roberts, 3rd Natl. Bank Bldg., archts. Otis C. Poundstone, Palmer Bldg., Atlanta, Ga., consult. archt. CD 4/8/46

Tex., Dallas—STORES—Leo F. Corrigan, Mercantile Bank Bldg., 40,000 sq. ft. floor space stores, own forces. **$775,000.** CD 11/16.

Tex., Fort Worth—DWELLINGS—Southland Terrace, Inc., 801 Commerce St., 100 single family dwellings, east side of Freeway. Owner builds. **$685,000.** CD 7/24.

Tex., Houston—DWELLINGS—J. E. Leicher, 2204 Arbor St., 75 dwellings, own forces. **$510,000.** Gabert & Wisdom, 1315 Bell St., archts.

Tex., Houston—DWELLINGS—Meadow Creek Village Corp., 4110 Dennis St., 75 dwellings, off Winkler Drive exten., to C & F Constr. Co., 1801 Shepherd Dr., **$565,900.** Awarded 11/24. CD 11/17.

Tex., Lubbock—DWELLINGS—Urban Development Corp., Lubbock, 50 unit, stone type dwellings, owner builds, **$335,000**; 100 dwellings, to Urban Constr. Co., Lubbock, **$545,000.** CD 7/27.

Que., Montreal—HOSPITAL—Julius Richardson Convalescent Hospital, Cote St. Luc Rd. and Bessborough Ave., 4 story, 48x200 ft., with 5 story wing, 85x432 ft., 120-bed T-shaped structural steel, brick, concrete hospital, to Louis Donolo, Inc., 8320 St. Lawrence Blvd. Approx. **$760,000.** C. R. Tetley, 1235 McGill College Ave., archt. CD 1/17/49.

INDUSTRIAL BUILDINGS

BIDS ASKED

Ill., Broadview—FACTORY—Bids Asked—Wilbert W. Haase Co., Purshek and 22 Sts., burial vault factory. $80,000. Wm. F. Kramer, 7520 Madison St., Forest Park, archt.

Ill., Franklin Park—FACTORY—Bids Asked—Owner, c/o Marx & Lutz, archts., 2734 N. Mildred St., Chicago, Zone 39, 1 story, 65x225 ft., steel, brick factory, $100,000.

Ill., Harvey—FACTORY—Bids Asked—Whiting Corp., 157 and I. C. R.R., factory. $100,000.

Tex., Houston—WAREHOUSE, etc.—Bids Asked—Garson & Kaplan, 33 Artesian Pl., warehouse, $85,000; garment factory, $350,000. Gabert & Wisdom, 1315 Bell St., archts. CD 11/27.

Tex., Houston—SHOP—Bids Asked—Products Engineering Corp., 1208 Cleburne St., shop. **$85,000.** M. R. Van Valkenburgh, 1208 Cleburne St., engr. CD 12/4.

Tex., Houston—WAREHOUSES—Bids Asked—Supply Row Corp., 208 Cleburne St., warehouse, Supply Row Center and extens. of Polk Ave., $150,000; warehouse, 66 St., $150,000. M. R. Van Valkenburgh, 1208 Cleburne St., engr. CD 12/4.

Que., Montreal—GARAGE—Bids Asked—G. Shubin, archt., 1415 St. Mark St., 1 story, 80x110 ft., rein.-con., structural steel, brick garage, for Masilin Brothers Transport, 198 William St.

SOON LETS CONTRACT

▲ **Ala., Birmingham**—PLANT, etc.—Westinghouse Electric Corp., Comer Bldg., soon lets contract plant and warehouse, $1,500,000. Lawrence Whitten Brown-Marx Bldg., archts.

CONTRACTS AWARDED

▲ **Calif., Stockton**—PLANT—American Can Co., 111 Sutter St., San Francisco, 1 story, 125,000 sq. ft. steel, concrete plant on 40-acre site, to Larsen & Larsen, 2455 Mason St., San Francisco. Donald R. Warren Co., 500 S. Figueroa St., Los Angeles, engr.

▲ **Ind., Indianapolis**—PLANT, etc.—Chrysler Corp., 341 Massachusetts Ave., Detroit, 31, Mich., 650,000 sq. ft. auto assembly plant and 2 story, 50,000 sq. ft. office, to H. D. Tousley Co. Inc., 552 Massachusetts St. approx. **$7,000,000.** Bids 11/29. CD 11/28.

▲ **Kan., Kansas Ciy**—PLANT—Colgate-Palmolive-Peet Co., 105 Hudson St., Jersey City, N. J., soap mfg. plant addn., to S. Patti Constr. Co., Inc., 1340 Admiral St., Kansas City, Mo. Approx. **$1,000,000.** CD 11/27.

Minn., Minneapolis—PARKING GARAGE—Downtown Auto Park, Inc., 503 Syndicate Bldg., general contract 4 story, 56x157 ft. parking garage, 4 St. and Marquette Ave., to H. N. Leighton Co., 716 S. 7 St. **$525,000.** Bids 11/15. CD 11/9.

▲ **N. Y., Pearl River**—PLANT—American Cyanamid Co., 30 Rockefeller Plaza, New York, design and construction 6 story, 160x190 ft. pharmaceutical plant, to Thompson-Starrett Co., Inc., 444 Madison Ave., New York. Awarded 12/4.

▲ **N. C., Wallace**—PLANT—J. P. Stevens & Co., Inc., 44 Leonard St., New York, N. Y., textile plant to produce fabrics from synthetic yarns, to C. M. Guest & Sons, Box J-1, Greensboro, approx. **$5,000,000.**

O., Cleveland—ENGINE PLANT—Ford Motor Co., 3000 Schaefer Rd., Dearborn, Mich., mechanical erection for engine plant, to F. H. McGraw & Co., 780 Windsor St., Hartford, Conn. Est. **$500,000.** CD 2/2.

▲ **Tenn., Chattanooga**—PLANT—Quaker Oats Co., 141 W. Jackson St., Chicago, Ill., corn mill and packing plant, to John Martin Co., Inc., 610 W. Manning St., **$1,000,000.** Bids 11/6. CD 10/31.

Tex., Dallas—TRANSFORMER STATION—Dallas Power & Light Co., Dallas Power & Light Bldg., 60,000 volt transformer station in St. Lamar Industrial Dist., own forces. Approx. **$850,000.** CD 6/2.

Tex., Houston—PLANTS—Shell Chemical Co., Shell Bldg., denaturing ethyl alcohol unit, Approx. **$650,000**; proprietary solvent plant unit, Approx. **$200,000**, own forces. CD 11/16.

▲ **Ont., Michipicoten Falls**—POWER UNIT, etc.—Great Lakes Power Co. Ltd., 122 East St., Sault Ste. Marie, 20,000 hp. power unit for dam 350,000 cu. yd. fill and 2,000 tons concrete, day labor. Approx. **$2,000,000.** CD 5/12/48.

Ont., Toronto—PRINTING PLANT, etc.—Brown Bros. Ltd., 100 Simcoe St., 1 story, steel, brick, printing plant, paper storage warehouse and offices at block bounded by Hillinger, Dohme and Watermain Sts. East York, to Foundation Co. of Ontario Ltd., 1220 Bay St., **$800,000.** R. A. Fisher, 1075 Yonge St., archt. Wallace Carruthers & Assoc., 35 Isabella St., and H. H. Angus & Assoc. 1221 Bay St., engrs.

Que., Quebec City—DIGESTER HOUSE, etc.—Anglo-Canadian Pulp & Paper Mills Ltd., 10 Capucino St. 75x102x124 ft. digester house, 144x188x44 ft. blow pit, 180x102 ft. acid plant, separate contracts. **$825,000.** J. O'Halleran, c/o owner, engr. CD 2/14/5.

UNCLASSIFIED

BIDS ASKED

† **N. C., Fort Bragg**—RECREATIONAL BUILDINGS—B.A. About 12/20—U. S. Eng., 308 Customhouse, Wilmington, rehabilitation recreational bldgs., Inv. No. Eng 31-975-51-4.

▲ **Ill., Granite City**—HARBOR and WHARF FACILITIES—B.A. 12/20—Missouri-Illinois Bi-State Development Agency, Leif Sverdrup, chain., Syndicate Trust Bldg., 915 Olive St., St. Louis, 1, Mo., constructing, operating and financing harbor and wharf facilities adjacent to new Chain of Rocks Canal on Mississippi River, wharf, docks, warehouse, loading, unloading and transfer facilities, etc. $5,000,000. Milton M. Kinsey, c/o owner, ch. engr.

N. Y., New York—PIER, etc.—B.A. 12/20—Comr. Marine & Aviation, Pier A, North River, Zone 4, pier and bulkhead shed substructure and other work, etc., and construct Pier 57, North River. Plans deposit $15.

N. C., Raleigh—LIVE STOCK JUDGING PAVILION—B.A. 12/21—At office Comr. State Bd. Agriculture, State Fair Div., Raleigh, live stock judging pavilion. Plans deposit $50. Wm. H. Deitrick, Inc., 115 S. Morgan St., archt.

† **Wash., Richland**—EXTERIOR REHABILITATION—B.A. 12/21—General Electric Co., prime contractor to Atomic Energy Comn., Richland, exterior rehabilitation 15 industrial and office bldgs. 13 frame and 2 masonry. Plans deposit $2.

† **Canal Zone**—UTILITIES, etc.—B.A. 12/27—At office Engineering and Construction Director, The Panama Canal, Balboa Heights, construct utilities, pavements and buildings for townsite extension at Margarita. Plans deposit $40.

Tex., Garland—PARKING AREA—Bids Asked—Rae E. Skillern & Assoc., 520 N. Pearl St., Dallas, auto parking area, incl. grading, drainage, rolling, $75,000.

SOON LETS CONTRACT

▲ **Texas**—RAILWAY LINE—Gulf, Colorado & Santa Fe Ry. Co., c/o W. T. Donoho, ch. engr., Rosenberg and Strand Sts., Galveston, soon lets contract change of line to connect with Benbrook Dam and reservoir, relocate 6.08 mi. tracks, near Primrose and Boss. Approx. $1,000,000.

LOW BIDDERS

Calif., Napa—EXHIBIT—State, Div. Architecture, P. Wks. Bldg. Sacramento, rejected bids Oct. 31, rein.-con. exhibit bldg., floriculture bldg. and grandstand for 25th District Agriculture Assn., L. B. **$259,500.** CD 11/8, under LB.

† **Washington**—TRANSMISSION LINE—Bonneville Power Admin., 827 N.E. Oregon St., Portland, Ore., constr. 76.6 mi. Columbia-Grand Coulee No. 4 230-kv transmission line, Douglas, Grant and Okanogan Counties. Spec. Inv. 5451, from Smith & White, Pier 65, Seattle, **$674,821.** CD 11/16.

CONTRACTS AWARDED

Arizona—GAS DISTRIBUTION LINES—El Paso Natural Gas Co., Bassett Tower, El Paso, Tex., 50 mi. 4½- to 16-in. addnl. natural gas distr. lines, **$725,000**, and 6 metering and regulating stations, **$225,000.** Owner builds. CD 8/29/46.

Kentucky—RURAL DISTRIBUTION LINES—Pennyrile Rural Electric Co-operative, Hopkinsville 217 mi. rural distr. lines and sys. imprvs., Todd Co., to Roy Richards Constr. Co., P. O. Box 88, Carrollton, Ga., **$535,129**, Cottrell & House, 902 Stahlman Bldg., Nashville, Tenn., engrs. CD 10/22/48.

Miss., Gulfport—WHARF etc.—City, Marginal Wharf, to Texas Constr. Co., Reserve Loan Life Bldg., Dallas, Tex., **$522,700*****warehouse, to J. C. McClendon Jr., 2518 Kelly St., Gulfport, **$57,978*****small craft harbor to Bernard & Byrd, P.O. Box 1688, Mobile, Ala., **$306,407.** Grand total $887,085. Bids 11/16. CD 10/30.

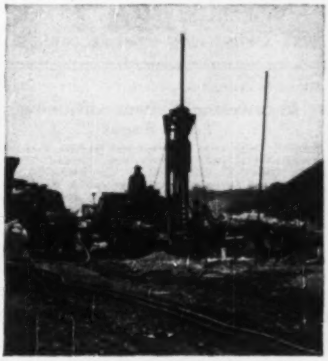
† **New Mexico**—TRANSMISSION LINES—Bureau Reclamation, Dpt. Interior, Bldg. 1 A, Denver Federal Center, Denver, Colo., Schedule 1, construct 80 mi. Socorro-Albuquerque 115-kv transmission line using overhead ground wires for entire length of line, Rio Grande Proj., Spec. DC-3206, to Reynolds Electrical & Engineering Co., Inc., 718 N. Piedras St., El Paso, Tex., **$624,419.** Bids 11/8, awarded 11/27. CD 11/17, under LB.

(Proposal Advertisements see pp. 91 to 93)

HOW EFFICIENT BLASTING SPEEDS RAILROAD IMPROVEMENTS

Du Pont explosives give better fragmentation ...greater economy on 6 million yard excavation

This open cut, 4,000 ft. long, 220 ft. maximum depth and 600 ft. wide at the top, is typical of Pennsylvania Railroad excavations to eliminate tunnels between Bowerston and Broadacres, Ohio, on its Panhandle Division.



Truck-mounted augers drill 6 in. holes varying in depth from 20 to 35 ft. at the center of the cut. Rock ranges from soft shale through sandy shale to a firm sandstone.

Holes at the center of the cut are loaded with Du Pont "Red Cross Extra" 40%—widely used in blasting operations of this type. It is dependable . . . has considerable water resistance.

Wagon drills are used for 2½ and 3 in. diameter holes on slopes of the cut. Crews space holes on a 6 x 8 ft. pattern, drilling holes to depths varying up to 18 ft.

Du Pont "Red Cross Extra" 50% and "Gelex" No. 2 are loaded into wagon drill holes. And Du Pont "MS" Delay Electric Blasting Caps are used in the primers.

Results of plan have been reduced back break, decreased vibration and better fragmentation. Rock is well broken all along the cut, permitting faster, more economical removal.

JOBS LIKE THIS confirm the efficiency, economy and dependability of Du Pont explosives and blasting accessories. Ask any Du Pont Explosives representative for complete information about these or any other Du Pont Explosives products. He'll be glad to help you with any blasting problem you have. E. I. du Pont de Nemours & Co. (Inc.), Explosives Department, Wilmington 98, Delaware.

CONTRACTORS FOR THE JOB . . .
Hunkin-Conkey Construction Co., Cleveland, Ohio.
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Rochez Bros. and M & S Construction Co.,
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OFFICIAL PROPOSALS

RATE: THE RATE FOR OFFICIAL PROPOSAL ADVERTISING IS $1.00 PER LINE (OR FRACTION) PER INSERTION.

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SEND COPY TO OFFICIAL PROPOSAL DIVISION, ENGINEERING NEWS-RECORD, 330 W. 42ND ST., NEW YORK 18, N. Y.

Bids: December 27, 1950 (216)

Electric Substations and Cables

CONTRACT 428

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A. M., Eastern Standard Time, on Wednesday, December 27, 1950, for Contract 428, for furnishing, testing and delivering two outdoor unit substations each having a capacity of 150 Kva. at 60 cycles, 3-phase, and about 300 feet of 3-Kv. electric cable, 3-conductor No. 6, all as set forth in the specifications.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of the City of New York, in the amount of one thousand dollars ($1,000.00), for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, requirements as to surety, etc., can be obtained at the office of the Chief Engineer, Room 1311, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, RUFUS E McGAHEN, JAMES J. MORAN, Commissioners, Board of Water Supply; RICHARD H. BURKE, Secretary.

Bids: January 19, 1950 (218)

Sewage Disposal Project Philadelphia, Pa.

DEPARTMENT OF PUBLIC WORKS
BUREAU OF ENGINEERING,
SURVEYS AND ZONING

Sealed Proposals will be received at Room 903 City Hall Annex, until 12 o'clock noon, on Friday, January 19, 1951, and opened at that time in Room 903 City Hall Annex, Philadelphia, Pennsylvania.

SOUTHWEST TREATMENT WORKS

The work consists of furnishing all material and labor for construction complete, including all Mechanical equipment, piping, (electrical equipment and plumbing), for eight (8) Sludge digestion tanks 110-ft. diameter and 37'6" high, galleries, valve houses, Pump houses and appurtenant work for the Southwest Treatment Works.

SCHEDULE "A"—
Excavation, General Construction, Mechanical Equipment and Piping—Contract No. SD 132 SW

SCHEDULE "B"—
Electrical Equipment, Conduits and Wiring—Contract No. SD, 133 SW

SCHEDULE "C"—
Plumbing—Contract No. SD 134 SW

Plans, proposal forms, and specifications may be obtained in Room 1101, City Hall Annex, Philadelphia. A purchase price of $10.00 is required for the plans which remain the property of the purchaser. Checks should drawn to the order of the Bureau of Engineering, Surveys and Zoning. No bid will be received unless bidder is qualified by the Director of Public Works. The questionnaire form with all questions fully answered must be filed with the Director of Public Works at least one week prior to the date of opening bids.

Each bid must be accompanied by security in form and amount as set forth in the proposal form.

THOMAS BUCKLEY
Director

Bids: December 19, 1950 (205)

Repowering & Reconditioning Ferry Boats

Sealed Bids will be received at the Department of Highways, Room 400, Central Highway Office Building, 1221 E. Broad Street, Richmond, Virginia, until 10:00 A.M., Tuesday, December 19, 1950, for the Repowering and Reconditioning Ferry Boats, "NEWPORT NEWS" and "WARWICK".

Plans and specifications are on file at the Richmond and office of Manager at Pine Beach Terminal, Norfolk, Virginia. Proposal guaranty shall be certified check or bid bond in the amount shown in schedule on back of proposal form. Bid Bond to be on form furnished by the Virginia Department of Highways. The Commission reserves the right to reject any or all bids.

Bids: January 10, 1950 (213)

Intercepter—Sec. A

STATE OF RHODE ISLAND AND
PROVIDENCE PLANTATIONS
DEPARTMENT OF FINANCE
DIVISION OF PURCHASES

NOTICE TO SEWER CONTRACTORS

Sealed bids for constructing TAFT ST.—PLEASANT ST. BRANCH INTERCEPTER, SEC. A., in Pawtucket, Rhode Island, will be received at office of State Purchasing Agent, State House, Providence until 10:00 a.m., Eastern Standard Time on January 10, 1951 and publicly opened and read at that time.

Project involves 680 ft. of inverted siphon, including 500 ft. of subaqueous work in Seekonk River. Inverted siphon consists of one line of 48-in., and one line of 30-in. precast, concrete pipe, and one line of 16-in. cast-iron pipe, all laid in same trench, and appurtenant work.

Drawings and contract documents may be seen at above office or office of Blackstone Valley Sewer District Commission, State Office Building, or Metcalf & Eddy, Engineers, 1300 Statler building, Boston, Massachusetts, weekdays except Saturdays and holidays, 8:30 a.m. to 4:30 p.m., and may be obtained from office of State Purchasing Agent on $25 deposit.

Bid Security $20,000 certified check, bid bond, or cash, performance bond 100 percent.

Prevailing wage rates and public Work labor laws applicable.

FRANKLYN A. ADAMS
State Purchasing Agent

Bids: January 10, 1950 (214)

Intercepter—Sec. B

STATE OF RHODE ISLAND AND
PROVIDENCE PLANTATIONS
DEPARTMENT OF FINANCE
DIVISION OF PURCHASES
NOTICE TO SEWER CONTRACTORS

Sealed bids for constructing TAFT ST.—PLEASANT ST. BRANCH INTERCEPTER, SEC. B, in Pawtucket, Rhode Island, will be received at office of State Purchasing Agent, State House, Providence until 10:00 a.m., Eastern Standard Time on January 10, 1951, and publicly opened and read at that time.

Project involves 615 ft. of 54-in. precast concrete pipe sewer, 4,000 ft. of 42-in. precast concrete-pipe sewer including 1,300 ft. in tunnel, and appurtenant work.

Drawings and contract documents may be seen at above office or office of Blackstone Valley Sewer District Commission, State Office Building, or Metcalf & Eddy, Engineers, 1300 Statler Building, Boston, Massachusetts, weekdays except Saturdays and holidays, 8:30 a.m. to 4:30 p.m., and may be obtained from office of State Purchasing Agent on $25 deposit.

Bid Security $25,000 certified check, bid bond, or cash, performance bond 100 percent.

Prevailing wage rates and public Work labor laws applicable.

FRANKLYN A. ADAMS
State Purchasing Agent.

Bids: January 3, 1951 (222)

Wiring for Remote Indicating Control System

THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
CONTRACT NYA-136

Sealed proposals for wiring for the remote indicating control system at New York International Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, until 11:45 A. M., Wednesday, January 3, 1951, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $10. per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman.
New York, December 14, 1950

(Continued on page 93)

Official Proposals Columns of

ENGINEERING NEWS-RECORD

are MUST reading, each week for contractors, engineering-construction companies, equipment and materials manufacturers, all over the United States . . . and used regularly for over 50 years by government, state, county and municipal departments to advertise bids.

Official Proposal Division

Engineering News-Record

330 West 42nd St.

New York 18, N. Y.

U. S. Government
(Continued from page 92)

Sealed bids will be received in the office of the Engineering and Construction Director, The Panama Canal, Balboa Heights, Canal Zone, until 10:00 A.M., Eastern Standard Time, December 27, 1950, for furnishing all plants, tools, equipment of sites and construction of utilities, pavements, and buildings for Townsite Extension at Margarita, Canal Zone. Sixteen masonry type buildings are included in this project.

Copies of plans and specifications may be obtained from the Engineering and Construction Director, Balboa Heights, Canal Zone. Requests should be accompanied by a $40.00 deposit for each set, the deposit to be in the form of a United States money order or certified check payable to "Treasurer, The Panama Canal, Balboa Heights, Canal Zone." The plans and specifications may be inspected at the following places:

The Panama Canal, 411 10th St., N. W., Washington 25, D. C.

Office of the Inspector in Charge, The Panama Canal, 804 Customs House, Philadelphia 6, Pa.

Office of the District Engineer, U. S. Engineer's Office, 4735 E. Marginal Way, Seattle 4, Washington.

Office of the District Engineer U. S. Engineer's Office, 751 S. Figueroa St., Los Angeles 55, Calif.

Office of the District Engineer, U. S. Engineer's Office, 909 17th St., Denver 2, Colorado.

Office of the Inspector in Charge, The Panama Canal, Room 1020, 24 State Street, New York 4, N. Y.

Office of the Inspector in Charge, The Panama Canal, Room 863, U. S. Customs House, 610 S. Canal St., Chicago 7, Ill.

Office of the District Engineer, U. S. Engineer's Office, 180 New Montgomery St., San Francisco 19, Calif.

Office of the District Engineer, U. S. Engineer's Office, 1709 Jackson St., Omaha 2, Nebraska.

Office of the District Engineer, U. S. Engineer's Office, Foot of Prytania St., New Orleans, La.

(207)

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DS-3251) will be received by Bureau of Reclamation, Denver, Colorado, January 9, 1951, and then publicly opened for furnishing hydraulic turbine for Flatiron Power Plant for Colorado-Big Thompson Project, Colorado. Delivery is desired within 570 days. For particulars, address Bureau of Reclamation, Building 1-A, Denver Federal Center, Denver, Colorado.

MICHAEL W. STRAUS, Commissioner.

(220)

Sealed bids will be received in the office of the Engineering and Construction Director, The Panama Canal, Balboa Heights, Canal Zone, until 10:00 A.M. Eastern Standard Time, December 29, 1950, for furnishing all plant, tools, equipment, materials, labor and services and for performing all work, for clearing, grading and preparation of site for townsite extension at Margarita, Canal Zone.

Copies of plans and specifications may be obtained from the Engineering and Construction Director, Balboa Heights, Canal Zone. Requests should be accompanied by a $10.00 deposit for each set, the deposit to be in the form of a United States money order or certified check payable to "Treasurer, The Panama Canal, Balboa Heights, Canal Zone." The plans and specifications may be inspected at the following places:

The Panama Canal, 411 10th St., N. W., Washington 25, D. C. Office of the Inspector in Charge, The Panama Canal, 804 Customs House, Philadelphia 6, Pa. Office of the District Engineer, U. S. Engineer's Office, 4735 East Marginal Way, Seattle 4, Washington. Office of the District Engineer, U. S. Engineer's Office, 751 S. Figueroa Street, Los Angeles 55, California. Office of the District Engineer, U. S. Engineer's Office, 909 17th Street, Denver 2, Colorado. Office of the Inspector in Charge, The Panama Canal, Room 1020, 24 State Street, New York 4, New York. Office of the Inspector in Charge, The Panama Canal, Room 863, U. S. Customs House, 610 South Canal Street, Chicago 7, Ill. Office of the District Engineer, U. S. Engineer's Office, 180 New Montgomery Street, San Francisco 19, California. Office of the District Engineer, U. S. Engineer's Office, 1709 Jackson Street, Omaha 2, Nebraska. Office of the District Engineer, U. S. Engineer's Office, Foot of Prytania Street, New Orleans, La.

(219)

U. S. Government

MISSOURI RIVER BASIN PROJECT Design Section, Casper, Wyoming, November 22, 1950. UNITED STATES DEPARTMENT OF THE INTERIOR, BUREAU OF RECLAMATION. NOTICE IS HEREBY GIVEN that sealed bids on Specifications No. 703S-162 will be received at P. O. Box 280, Reclamation, Center, Casper, Wyoming, until 10 a.m., Mountain Standard Time, December 14, 1950, and then publicly opened for furnishing and delivering Transformers, Lightning Arresters, Circuit Breakers, and Switching Equipment for Julesburg Substation, Transmission Division, Colorado, Missouri River Basin Project.

Copies on the standard forms and of the specifications may be obtained from the following offices of the Bureau of Reclamation:

A. A. Batson, Regional Director, New Customhouse, Denver, Colorado, and I. J. Matthews, District Manager, P. O. Box 280, Casper, Wyoming. No charge to prospective bidders for copies of the specifications; to others $0.25 per copy, not returnable.

(215)

Bids: December 20, 1950 (204)

State Road Work

NOTICE TO CONTRACTORS: State DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on the 20th day of December 1950, by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the Construction of the following project in Oswego County.

Contract No.	Type	Name of highway and miles	Deposit for plans	Bid deposit	Dept. estimate
Chap. 944 Laws 1946	Asphalt Conc. Type 2A 5 Sp. Girder 600' Total	Utica St. Bridge over Oswego River: City of Oswego 0.18 Mile	$15	$66,000	$1,202,631.90

Maps, plans, specifications, and estimates may be obtained at the office of the Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineer, William Robinson, 301 E. Water Street, Syracuse, New York, and may be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for contract is indicated. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement.

Proposal for contract must be submitted in a sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check payable to the order of "State of New York, Commissioner of Taxation & Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders".

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

Bids: February 20, 1950 (212)

Construction of Section I of Granville Bridge (1950)

CITY OF VANCOUVER

SEALED TENDERS will be received by the undersigned for the construction of the central portion of a High Level Bridge over False Creek and Granville Island, Vancouver, B. C.

Tenders will be received not later than noon Monday, February 19th, 1951, and marked "Tender for Granville Bridge, Section I". The said tenders will be opened on Tuesday, February 20th at 10:00 a.m. in No. 1 Committee Room, City Hall, at Vancouver, B. C.

OFFICIAL PROPOSALS

Section I of the Bridge will be about Seventeen Hunderd and Seventy-three (1773) feet long between centres of piers and about One Hundred and Three (103) feet wide, having a Three Hundred and Ninety-seven point five (397.5) foot channel anchor span with Two (2) One Hundred and Twenty-five (125) foot cantilever arms, Two (2) Two Hundred and Fifty (250) foot suspended spans, One (1) Ninety-four (94) foot anchor span with Two (2) Fifty--two point five (52.5) foot cantilever arms, Two (2) One Hundred and Fifty-seven point five (157.5) foot suspended spans, and One (1) Hundred (100) foot simple span, all of structural steel. The piers and deck will be of reinforced concrete and the foundations will contain steel and wood piling.

Plans, specifications, Form of Tender, and other particulars may be obtained at the office of the City Engineer, City Hall, upon payment of the sum of Five Hundred Dollars ($500.00) which will be refunded on the return of the Plans, Specifications, et cetera in good condition. Tenders must follow the form of tender supplied by the City Engineer.

Each tender must be accompanied by a certified cheque on a Vancouver Branch of a Chartered Bank in Canada for the sum of Two Hundred and Fifty Thousand Dollars ($250,000.00) payable to the City of Vancouver, or by a bond of a Guarantee Company authorized to carry on business in the Province of British Columbia, for payment to the City of Vancouver of the said amount, conditioned on the due execution of a formal contract with the City of Vancouver, satisfactory to the City Solicitor. The amount of the cheque or bond of the successful tenderer will be forfeited should he decline to enter into a contract for the work as aforesaid. The certified cheque or bond accompanying each unsuccessful tender will be returnable to such tenderer upon the awarding of the contract to the successful tenderer.

The successful tenderer will be required to furnish a Bond as aforesaid for the sum of One Million Dollars ($1,000,000.00) in a form approved by the City Solicitor for the due and proper performance of the contract.

The lowest or any tender not necessarily accepted.

RONALD THOMPSON
City Clerk.

City Hall,
December 4, 1950

Bids: January 3, 1951 (221)

Membrane Roofing for Hangar No. 1

THE PORT OF NEW YORK AUTHORITY
TETERBORO AIRPORT

CONTRACT TA-12

Sealed proposals for furnishing and installing membrane roofing for Hangar No. 1 at Teterboro Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, until 11:30 A. M. Wednesday, January 3, 1951, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $10. per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman.
New York, December 14, 1950

Bids: December 18, 1950 (217)

Widen Embankments of Railway

Sealed bids for furnishing labor and material and performing all work to widen existing embankments of the New Orleans, Texas & Mexico Railway for raising bridge over the Atchafalaya River at Krotz Springs, St. Landry Parish, Louisiana, requiring approximately 116,000 cu. yds. of borrow material, will be received by C. S. Kirkpatrick, Chief Engineer of the New Orleans, Texas & Mexico Railway, 204 Union Station, Houston, Texas, until 10 A. M. Central Standard Time, December 18, 1950, and then publicly opened.

SEARCHLIGHT SECTION

(Classified Advertising)

EMPLOYMENT: BUSINESS: "OPPORTUNITIES" **:EQUIPMENT :USED OR RESALE**

UNDISPLAYED RATE

(Not available for equipment advertising)

$1.20 a Line, minimum 4 lines. To figure advance payment count 5 average words as a line.

INDIVIDUAL EMPLOYMENT WANTED undisplayed advertising rate is one-half of above rate, payable in advance.

Box Numbers in care of our New York, Chicago and San Francisco Offices count as one additional line.

Replies are forwarded each day as received at each of the offices mentioned without additional charge.

Discount of 10% is allowed if full payment is made in advance for 4 consecutive insertions.

DISPLAYED RATE

The advertising rate is $11.50 per inch for all advertising appearing on other than a contract basis. Contract rate quoted on request.

An advertising inch is measured ⅞ inch vertically on one col., 3 col.—30 inches to a page. E.N.R.

New advertisements received by December 15th will appear in the December 28th issue.

ENGINEERS

ELECTRICAL - MECHANICAL - STRUCTURAL

Openings in Ohio offices offering long term employment with good salary for qualified Group Leaders, Designers and Draftsmen experienced in one or more of the following phases of industrial plant design:

Electrical Power, lighting layouts and electrical controls.

Mechanical Plant layout, process piping, conveyors, heating and ventilation, boiler houses, process equipment layout, refrigeration, plumbing, tanks and vessels, packaging equipment, special machinery and equipment.

Structural Structural steel and reinforced concrete.

Please submit complete resume stating experience, education, salary required and availability date.

THE H. K. FERGUSON COMPANY
Engineers and Builders
The Ferguson Building, 1783 East 11th Street Cleveland 14, Ohio

ENGINEERS, DESIGNERS, DRAFTSMEN

—All Grades

Good positions open in San Francisco and Los Angeles for experienced engineers, draftsmen and designers for work on chemical, industrial and power projects. Refinery, process, mechanical, structural and electrical engineers are needed; also qualified layout men, designers and detailers for electrical, structural, mechanical and piping squads.

Write stating experience, education, age, references, salary expected. Applications held in confidence; prompt consideration.

BECHTEL CORPORATION

PERSONNEL DEPARTMENT

ROOM 11
220 BUSH STREET
SAN FRANCISCO, CALIF.

ESTABLISHED 57 YEARS

POSITIONS IN

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Architecture
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Chemistry
Teaching
Mining
Sales

Our many years of specializing in Engineering and Technical help enables us to number among our clients the most desirable employers and to place at your disposal a most attractive method of getting in touch with parties needing men of your qualifications.

THE ENGINEERING AGENCY INC.
53 W. Jackson Blvd. Chicago 4, Ill.
Room 1662 Harrison 7-4056

DRAFTSMEN

STRUCTURAL STEEL

DETAILERS AND CHECKERS
WITH EXPERIENCE
CHAS. E. HESS
Triangle Bldg. Pittsburgh 22, Pa.

FIRST CLASS FOREMAN WANTED

For large concrete sewers and steel sheet piling work in southern N. J. State experience, salary and availability

P-8391, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (18)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

STRUCTURAL ENGINEER, experienced in steel and reinforced concrete design, wanted by large, well established Architect-Engineer office located in the Pacific Northwest. Must be capable of assuming design responsibility for commercial and industrial buildings. P-8257, Engineering News-Record.

SALES ENGINEER Wanted—Opportunity for man with construction experience to work into position of Sales Engineer. Experience in general construction desired. Advise age, experience, references, and availability in first letter. Address: R. P. Wilkinson, Economy Forms Corporation, Box 128, Highland Park, Station, Des Moines 13, Iowa.

ENGINEERS WANTED for industrial fire prevention field work by national insurance organization with offices in most major cities. These are permanent jobs with a real future, but candidates should appreciate that extensive away from home travel is involved. Age 26-40 preferred. P-8306, Engineering News-Record.

EXECUTIVE WANTED. Medium sized Mid-Western Crushing and Road Machinery Manufacturer (1,000,000 sales per year) would like to contact executive type man between the ages of 40 and 55 to fill position of top executive. Should have administrative type experience pertaining to foundry, machine shop, welding shop, assembly plant and sales engineering to completely qualify. P-8360, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT Wanted. Capable of handling concrete forms, concrete, reinforcing steel, excavation, pipe laying and general supervision of sewerage disposal and water works construction. Give references, enclose photo, reply immediately. R. M. Luff Construction Co., York and Welsh Roads, Willow Grove, Pa. Phone Willow Grove 2005.

PERMANENT ESTIMATOR position in Central New York State. Experienced man with a background of estimating complete and versatile projects, large and small, including all types of industrial work, not only standard building and structural phases, but particularly special apparatus and piping installations. Estimator should be adept in broad estimating procedures, as well as detailed specification pricing. Salary commensurate with ability and opportunity for advancement. P-8436, Engineering News-Record.

POSITION VACANT—Asphalt Superintendent for New Jersey Turnpike. Must be familiar with latest equipment and methods. P-8432, Engineering News-Record.

SENIOR FIELD Electrical Engineer to work directly under Assistant Chief Electrical Engineer, to supervise work done by District Electrical Foremen in various camps, Concentrator Electrician, etc. 3-year contract. Transportation both ways and salary while traveling paid by Company. In reply give complete details. P-8418, Engineering News-Record.

POSITION VACANT—Office Engineer to coordinate field and office records for force account negotiations. P-8431, Engineering News-Record.

STRUCTURAL STEEL Detail Draftsmen and Checkers. All types of Structures. Vacation and bonus plan, good working conditions. Only top quality men. Send complete written information. Sanborn, Steketee and Associates, 1214 Cherry Street, Toledo 2, Ohio.

MECHANICAL ENGINEER. Must be graduate with five years or more experience. Required to design and make working drawings for complete projects from rough sketches. Position permanent. Heavy Chemical Plant SW Louisiana. In reply state age, education, experience in detail and salary desired. P-8462, Engineering News-Record.

ASSISTANT TO Supt. of Maintenance.—Graduate mechanical Engineer or equip. experience. Age 35 or over with thorough experience in maintenance of Chemical Plant or similar, consisting conveyors, pumps, compressors, boilers, stills, dryers, towers, kilns, etc. Duties include investigations requiring Engineering studies and reports on assignments, also inspection and checking reports to keep Supt. informed of work in SW Louisiana. In reply state age, education, experience in detail and salary desired. P-8470, Engineering News-Record.

Engineers Wanted

Civil—Electrical—Mechanical—Structural

***Apply* KAISER ENGINEERS**
Division of Kaiser Industries, Inc.
1924 Broadway Oakland, California

ENGINEERING

We anticipate increasing our engineering organization during the next several months for the design of Oil Refinery, Blast Furnace, Open Hearth, Steel Mill and Power Plants.

These men should be qualified as draftsmen, designers, checkers or higher engineering skills on design of piping, instrumentation, pressure vessels, structural steel, concrete, platework, heavy mechanical equipment and electrical.

If you are interested and have engineering design experience on this class of work, write to us for a personnel form for prompt consideration of your qualifications.

This work is in our Cleveland office, and is on a 5-day, 45-hour week basis, with time and one-half over 40 hrs; also, vacation and holiday pay. Steady employment and a good opportunity with a good organization.

ARTHUR G. McKEE & CO.
2300 Chester Ave.
CLEVELAND 1, OHIO

ENGINEERS

Major oil company operating in the Middle East requires graduate engineers in numerous classifications, including:

CIVIL
ASST. CIVIL
MECHANICAL
ASST. MECHANICAL
ELECTRICAL
COMMUNICATIONS
FIELD CONSTRUCTION

Positions cover various fields of specialization in the above classifications. Vacancies are for both experienced and inexperienced men. If interested write giving complete outline of experience, education and personal history.

P-8312, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

Graduate ENGINEERS

GOOD OPPORTUNITIES

for

MAINTENANCE ENGINEERS: Five to ten years' in planning maintenance work, establishing manpower and material requirements, scheduling and controlling work. Must be thoroughly familiar with Machine and Hand Tools used in Plant Maintenance Work. Must have supervised persons doing maintenance work. Must be graduate. For consultation work.

HEATING AND VENTILATION ENGINEERS: Eight to ten years' progressively difficult experience in field and office problems in heating, ventilating and air-conditioning design. Also, experience in making economical evaluation of alternate methods. Must be graduate.

PROCESS ENGINEERS: Must have at least eight years' industrial plant design and experience with at least three years in responsible charge of design work. Plant experience desirable. Must have experience in chemical plant design calculations, equipment design and plant arrangement, with knowledge of structural, power, instrumentation design, etc. Must be graduate.

Give experience, education, age, references, personal history, salary received and salary expected. Please be complete and specific.

All inquiries will be considered promptly and kept confidential.

E. I. du Pont de Nemours & Co.
(Inc.)
Engineering Department Personnel
WILMINGTON 98, DELAWARE

Well known building concern, New York location, seeks services of experienced men:

(1) **To head up Purchasing and Expediting Department.** Background must definitely indicate strong experience in estimating, purchasing, expediting, general supervision and administrative ability.

(2) **Estimator** for Industrial Building Construction.

Reply in confidence giving full details of background, earning capacity of last five years. Enclose snapshots.

P-8321, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

EBASCO

OFFERS

DESIGNER OPPORTUNITIES

Immediate Openings

WORK IN

DOWNTOWN NEW YORK

Modern Office Facilities

■ ***Concrete Designers***

At least 5 years' recent exp. power plant design or heavy industrial structure design.

■ ***Electrical Designers***

At least 5 years' recent exp. in design of steam & hydro-electric power plants, high-voltage substations and switch-yards.

■ ***Mechanical Designers***

At least 5 years' recent exp. in power plant design or related design fields.

■ ***Structural Designers***

At least 5 years' recent exp. on design of utility power plants or heavy industrial structures.

TECHNICAL GRADUATES PREFERRED OR EQUIVALENT EXPERIENCE.

Liberal Employee Benefits

APPLY 9 to 5 OR
MONDAY EVENINGS UP TO 7.

EBASCO SERVICES, Inc.
2 RECTOR ST., N. Y.
16TH FLOOR, PERSONNEL DEPT.

ASSISTANT CHIEF DESIGN ENGINEER

Capable supervising fundamental design Industrial and Public Utility Power Plant; able to estimate and do early design for proposals.

CHIEF DRAFTSMAN

To supervise production large drafting and engineering force engaged in structural, concrete, piping, electrical and mechanical work; prior Industrial or Public Utility Power Plant experience desirable.

Can consider only candidates under 50 years of age. Both are permanent positions, with good salary for right men. All replies confidential. Submit complete experience resume to:

SALARY PERSONNEL MANAGER

DRAVO CORPORATION

NEVILLE ISLAND PITTSBURGH 25, PENNSYLVANIA

DESIGNER-DRAFTSMAN

WANTED

by long established Engineering firm for work in North Carolina office specializing in Public Works Projects including Steam-Electric Power Plants, Water Purification Plants, Sewage Treatment Plants and other Public Works Projects:

- **(a) One (1) Architectural Engineer capable of design, layout and production of working plans and specifications and assuming, in addition, supervision of designing and drafting personnel.**
- **(b) Two (2) Designer-Draftsmen for Steam-Electric Power Plant design and preparation of working plans for general and detailed layout including structures, equipment and piping.**
- **(c) Two (2) as per (b) except for work on Water and Sewage Treatment Plants.**
- **(d) Two (2) Draftsmen capable of rapid preparation of completed working drawings from designs by others. Draftsmanship and lettering must be neat and accurate.**

Salary open. Furnish complete experience data, samples of workmanship, recent photograph, references, earliest date could report for work, with reply. Only maturely experienced men wanted.

P-8345, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

Structural Steel Detailers Wanted

Pay above average, vacation with pay, steady work, modern air-conditioned offices. Company est. 30 years. Send detailed information.

THE MARYLAND STEEL PRODUCTS CO.
P. O. BOX 1997
BALTIMORE 3, MARYLAND

STRUCTURAL STEEL DESIGNER AND ESTIMATOR

Wanted by leading central west fabricator. Permanent position and good opportunity with large well established and growing company. Please state qualifications, past experience and salary requirements.

P-8258, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

CONSTRUCTION SUPERINTENDENT

Well known building concern, New York location, seeks services of experienced construction superintendent in New York and New Jersey Area. Opportunity for advancement to General Superintendent. Reply in confidence giving full details of background, earning capacity of last five years. Enclose snapshot.

P-8322, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

SALESMAN—AGGRESSIVE

with following among general contractors and builders in N. Y. City area, to sell lumber for well established yard. Lumber experience not necessary. State lines and territory covered, age & salary.

SW-8413, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

ARE YOU THIS MAN?

Here's an opportunity for a man of ability and vision to buy a small, growing, fully-equipped construction business which enjoys a fine reputation with nationally-known clients and local consulting engineers. Ideal for superintendent of large construction company who wants to direct his own business. Can net $25,000 a year and still find leisure time for hunting and fishing, for which this beautiful section of the East is noted.

BO-8430, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

EMPLOYMENT SERVICE

SALARIED PERSONNEL, $3,000-$25,000. This confidential service established 1920, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L, 241 Orange St., New Haven, Conn.

POSITIONS WANTED

CONSTRUCTION ENGINEER and Superintendent desires steady employment with Cleveland concern. Qualified in or on light and heavy construction. PW-8361, Engineering News-Record.

HARD HITTING general construction superintendent not afraid of hard work or long hours. Good organizer. Specializing large housing projects, such as: "Duplexes"; houses or 30 story apts. Age 43. PW-8383, Engineering News-Record.

CRUSHING PLANT or Sand and Gravel Plant Supt., also heavy grading, specializing in rock removal. 28 years experience. PW-8422, Engineering News-Record.

CIVIL ENGINEER, licensed, 32 years experience industrial, commercial buildings, housing. Design, estimating, contract negotiations, field supervision, maintenance. Some foreign experience, speaks Spanish. Desires responsible position, preferably in East. Willing travel. PW-8441, Engineering News-Record.

MASTER MECHANIC, Equipment Supt., Mechanical Operating Engineer, over twenty-five years' experience with erection, repair and maintenance of heavy industrial, power house, pumping stations and marine equipment. Desires permanent position. PW-8407, Engineering News-Record.

PART TIME WORK WANTED

FREE-LANCE ESTIMATOR — highly skilled, all types construction, all trades. C.E. graduate. Quantity take-offs and pricing. Will call for plans. N. Y. vicinity. LAurelton 5-3393, PTWW-8302, Engineering News-Record.

PH.D. CANDIDATE, Columbia Univ. (Civil Engr.) part time position wanted. Two years general engineering experience. Research preferred. PTWW-8341, Engineering News-Record.

STRUCTURAL ENGINEER; registered, 26 years experience, desires part time work designing, detailing, checking, etc. PTWW-8391, Engineering News-Record.

THE TAKE-OFF of quantities for any projects and the reinforced concrete design by C.E.—correctly, conscientously, quickly. PTWW-8385, Engineering News-Record.

N. Y. STATE Licensed Structural Engineer, Designer and Detailer available for part time work. 35 years experience. PTWW-7812, Engineering News-Record.

JUNIOR ENGINEER

Age 30—Married—3 yrs. exp. industrial plant design and const.—2½ yrs. residential—Have supervised and trained men successfully — Excellent safety and cost record—Willing to work anywhere—Long term connection sought—Available 30 days.

PW-8448, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

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Approximately 30,000 sq. ft. floor space 21 ft. clearance to trusses. 8 inch H column spaced 15 ft. for 300 ft. length by 19 ft. for 95 ft. width. All now knocked down and match marked.

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Foot of Justison St., Wilmington, Delaware

WANTED

WANTED

DIPPER DREDGE

To be used in Florida. Will rent, purchase or will sublease contract. Reply to

W-8471, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

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6-33" beams 141 lbs x 53'9"
12-10" beams 49 lbs x 23'6"
72-10" beams 15 lbs x 14'4½"

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Large Mechanical Corporation

with quarter million in equipment and tools for Plumbing, Heating, Ventilating, Sheet Metal, and Electrical work; with excellent Estimating, Supervising, and Purchasing Departments; good material connections; wide experience in the field of Power Plants, Water Treatment Plants, Government Housing, Hospitals, and Office Buildings, desires to make connection with reliable large General Building and Engineer Contractor. Object—expansion. Location no object. Reply BO-8447, Engineering News-Record.

NOTICE!

FINAL CLOSING DAY FOR COPY TO APPEAR IN THE DEC. 28TH ISSUE WILL BE FRIDAY, DEC. 15TH.

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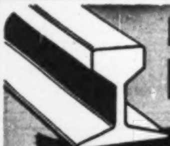
TRACK ACCESSORIES



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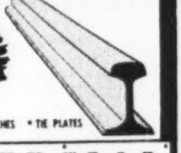

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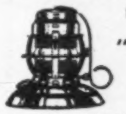

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"LIGHTHOUSE" LANTERN
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New design globe gives penetrating light that shows up to 1/3 further than ordinary globe. A must for every construction job. Red enamel finish.

CHOICE OF RED OR CLEAR LIGHTHOUSE TYPE GLOBE **$1.85** EA. F.O.B. PHILA.

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WATERPROOF
DUFFEL BAG
Comp. with 2 Handles & Zipper

A fine bambozine bag for carrying clothing, tools and gear from job to job. Spacious, 32" long, 12" diameter with reinforced seams and handles.

REGULAR $10.00 VAL. **$3.50**
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NEW U. S. NAVY-AIR CORPS.
WATERTIGHT COVERALLS

UNSINKABLE, Comes Complete with INFLATABLE AIR CELLS, ATTACHED RUBBER GLOVES & BOOTS.

Protect your men when working in flooded excavations and ditches or on any job where there is danger of slipping or stepping into deep water. Suit is made of durable rubberized O.D. duck. With vulcanized seams. Can be cut to make separate garments.

REGULAR $40.00 VALUE **$8.95** A SUIT
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214 N. 22nd St. PHILADELPHIA 3, PA.

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NEW!

4000 K.W. G.E. TURBO GENERATORS

BIG SAVINGS IN COST: Two Sets—one includes turbine, generator, exciter, air cooler, electric tachometer, sole plates, air shields, coupling and guard, necessary bolts, piping, regulators, steam and oil pressure gauges.

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8" x 36#	40'
10" x 42#	40'
10" x 49#	40'
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Plates — from 3/16" to 1"

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D8—IH w. angle & DDPCU, good.
D4—7J bull blade, Huber 7 ton road roller, Cat. Diesel eng. (8800 power unit)
Graders, 511 Adams & 11 Cat. tandems.
A. W. Badger crane. Al. all above is good equipment.

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Elizabeth 3-9013

NEW STEEL STORAGE TANKS IN STOCK

8—20,000 GAL. 10'6" x 31'
8—10,000 GAL. 8' x 27'
6—10,000 GAL. 10' x 17'2"

L. M. STANHOPE, Rosemont, Pa.

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ONE OF THE LARGEST STOCKS IN THE EAST
- Seamless and Welded ½" to 26" O.D.
- All wall thickness Manufactured.
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C. I. Water Pipe A.W.W.A. Standard

BELL & SPIGOT—12 inch
16 inch
20 inch
24 inch and other sizes
FLANGED PIPE— 4 inch
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8 inch
10 inch
12 inch

C.I. Water Pipe Fittings—B & S, and Flanged—All Kinds and Sizes

SOIL PIPE—EXTRA HEAVY—8 inch, 10 inch, 12 inch, 16 inch

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At present our inventory of steel shapes and forms includes a full line of both new and used steel especially for heavy construction work. 4" I beam to 36" Girder Beam. 14" Columns 287#/398#

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Stock list on request. Write, wire or phone.

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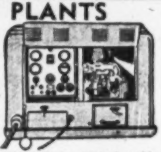
Cypress 9-5440-1

LIGHT PLANTS



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War Surplus
Signal Corps
Power Unit PE 197

115v 60 cy. A.C. single ph. 5 K.W. Hobart, water cooled, 14 h.p. 4 cyl. Hercules engine. **Remote Control,** complete panel board with instruments. 150 ft. auto remote control cable with reel; 150 ft. #6 hvy. duty wire with reel; housed in metal case with replacement parts & tools. Cable with reels alone worth $400. Reg. price of unit $1900. Shipping wt. 1250 lbs. Our price, complete...... **$895.00**
f.o.b. Chicago

2½ K. W. LELAND POWER PLANT $295.00

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All sizes Vulcan & McKiernan Pile Hammers & Extractors for Rent and Sale—Shop Rebuilt

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"WE BUY STEEL PILING FOR CASH"

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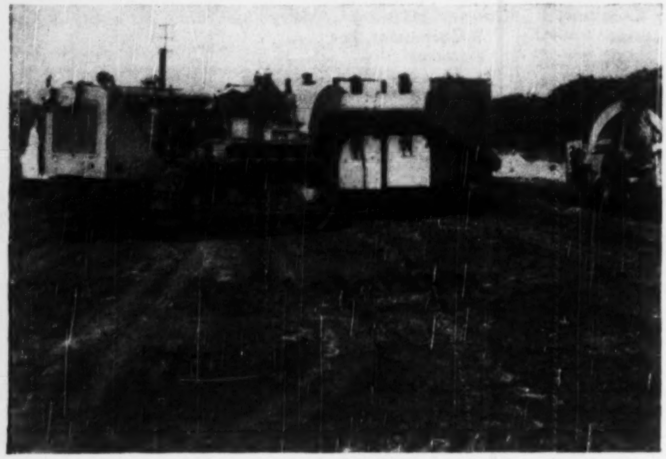
NEW PRODUCTS

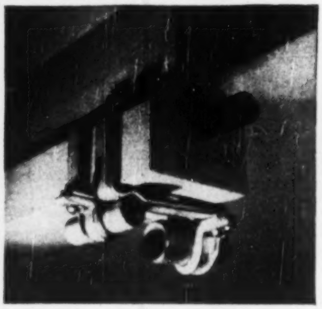


Compaction-roller loads range to 15 tons per tire

Flexible compaction roller consists of a series of weight-box units, each equipped with a wheel and tire. These units are filled with wet or dry sand, earth, scrap, or other material. As the roller is towed over the variable surface of earth fills, the units oscillate up and down and provide a constant and unchanging compaction weight on each tire. Thus there is no bridging or sudden shifting of combined weight on any one or two wheels. A sectionalized tubular yoke permits the use of three to six of the weight-box units. By the same means, the unit can be dismantled for easy shipment. Used on the Whittier Narrows Dam fill, the general contractor, Winston Bros., reports that 6,000 yd of clay were compacted a day.—SOUTHWEST WELDING & MFG. CO., WHITTIER, CALIF.

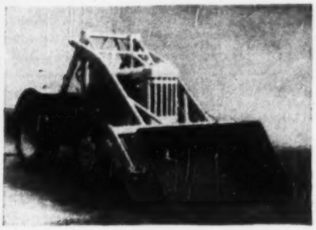
New plaster aggregate

Zonolite finish aggregate when used in combination with unfibred gypsum produces a plaster that provides a smooth, hard finish over either a vermiculite or sand base coat. A special feature is that it eliminates the mixing of lime and gaging plaster. Characteristics claimed include: Strongest possible bond as a result of its gypsum-to-gypsum application; easy proportioning, easy working; spreads quickly to allow long sweeps with the trowel; and is resistant to chipping or marring when nails or picture hooks are driven into the wall. The manufacturer states that this finish aggregate has undergone an extensive 3-year field test.—ZONOLITE CO., 135 S. LASALLE ST., CHICAGO 3, ILL.



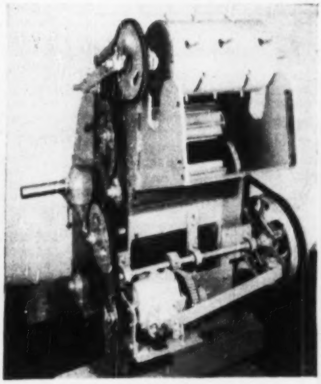
Clamp hanger for joists

Loadgrip clamp hanger holds piping, conduit, ducts, furring strips, and other suspended fixtures to the underside of pre-cast concrete joists. It consists of two pieces, and is easily attached without special tools. After the tongue and fork are assembled, the jaws are slipped over the flange on the bottom of the joist. As the hanger is pushed upward, the jaws tighten their grip on the joist until a final tap with hammer or a block of wood, drives them into firm position. Available for 8-in. joists.—UNITED INDUSTRIES, BOX 449, MADISON 1, WIS.



Hydraulic bucket loader

British-made hydraulically operated bucket loader has a $\frac{7}{8}$-yd capacity. It features a fully oscillating front axle for travel over rough ground, and a low center of gravity to improve stability. Specifications: Over-all height, bucket raised, 14 ft 9 in.; over-all height, bucket on the ground, 6 ft 11 in.; over-all length, 15 ft 0 in.; over-all width, 6 ft 8 in.; maximum discharge height, 10 ft 3 in.; and operating weight, 5 U. S. tons. Auxiliary attachments include bulldozer blade, operator's cab, and crane boom.—W. E. BRAY & CO., LTD., ISLEWORTH, MIDDLESEX, ENGLAND.



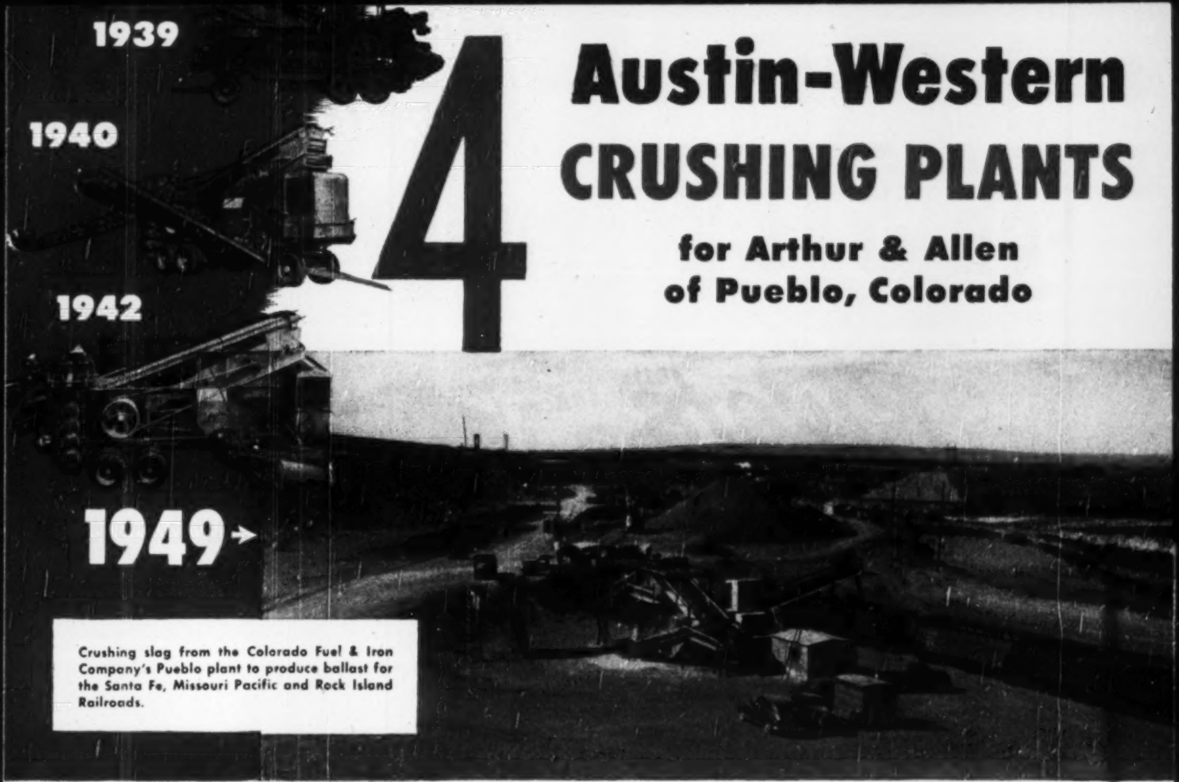
Heavy-duty hammer mill

New-type heavy-duty industrial hammer mill is based on the original Dellinger unit. Completely redesigned and refined, the mill is manufactured in two models, the H.M. 1250 and H.M. 1650, having feed openings up to 239 sq in. Special feed rolls, together with an extra finger-feed roll, are incorporated to handle roughage and fibrous materials. Transmission

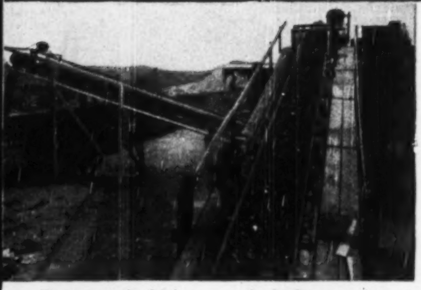
(*Continued on page 105*)

4 Austin-Western CRUSHING PLANTS

for Arthur & Allen of Pueblo, Colorado



Crushing slag from the Colorado Fuel & Iron Company's Pueblo plant to produce ballast for the Santa Fe, Missouri Pacific and Rock Island Railroads.

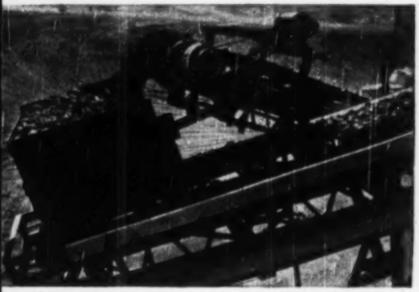


The man at the feed conveyor in the foreground is salvaging iron from the slag.

This, the fourth Austin-Western Crushing and Screening Plant purchased by Arthur & Allen over a ten-year period, has an average run of 350 tons per hour and has reached a peak output of 420 tons per hour. The finished product is, in almost all cases, 1½″ minus to ⅜″ plus. The percentage of crush is approximately 60.

Whatever your production requirements, an Austin-Western Plant, designed and tailor-made to meet them, will do the same sort of outstanding job for you. Let's talk it over.

AUSTIN-WESTERN COMPANY, AURORA, ILLINOIS, U.S.A.

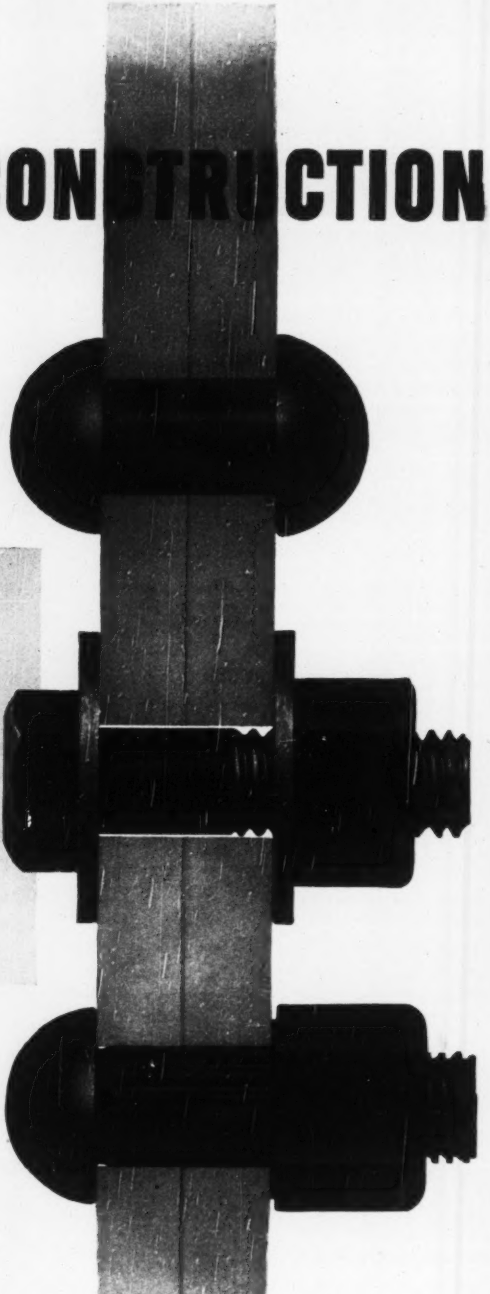


These conveyors are carrying the combined output of jaw and roll crushers.

The loading hopper is arranged to accommodate two trucks at one time.

Austin Western

FOR STEEL CONSTRUCTION



Rivets

Bethlehem Cold-Made Rivets are furnished in all types, and to all specifications, in sizes up to 1 in. diameter x 8 in. long.

New Method for Assembling High-Tensile Bolted Joints

Many steel fabricators and erectors find Bethlehem's high-tensile steel bolts ideal for bolting structural joints. Bolts are used with hardened steel washers, and are wrenched to about 80 pct of the yield point. Resulting tension resists shear through friction at the faying surfaces. Bolts and washers come in full size range.

Rivet-Bolts

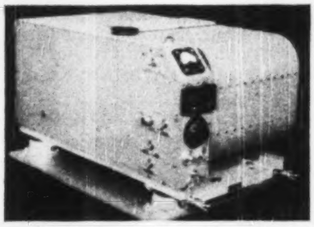
Bethlehem produces Dardelet Rivet-Bolts in a range of sizes for every requirement.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BETHLEHEM STEEL

running in a bath of oil permits an instant change of speed of the feed rolls to adjust to various kinds of materials. Power may be supplied by diesel or gasoline engines or electric motor.—DAFFIN MFG. CO., KELLER AVE. & FRUITVILLE PIKE, LANCASTER, PA.



Recording oscillograph

Model 408 recording oscillograph has been designed and built expressly for mobile and airborne operations. Paper supply and take-up magazines are combined in a single, detachable, daylight-loading unit. Standard features include: Automatic record numbering, paper footage indicator, trace scanning, trace identification, and automatic record length. Remote control unit is optional. All controls and switches are located on or near the front of the oscillograph. The Model 408 is 20 in. long, 12¼ in. wide, 8⅞ in. high, and weighs 51 lb.—CENTURY GEOPHYSICAL CORP., 1333 N. UTICA, TULSA, OKLA.

Mechanical dump hoist

Capacities of the Dube mechanical dump-truck hoist range from light and medium-duty units, to a model designed for trucks having a gross vehicle weight of 23,000 to 28,000 lb. Entirely mechanical in operation, power is obtained from the truck's take-off. It features positive power-down and power-up action; and a 60-deg dumping angle. Hoist is self-locking in any dumping angle.—DETROIT MECHANICAL HOIST CORP., 3502 W. FORT ST., DETROIT 16, MICH.

Cable splicer

Tweco Lug-Set block and punch are designed to overcome problems connected with soldering of cable lugs

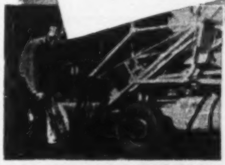
(Continued on next page)

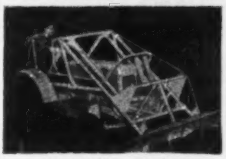
Tractair with attachments does the work of expensive specialized equipment . . .

Tractair equipped with front-end loader. This loading unit has 8 quickly interchangeable accessories. You can change from bucket to crane to backfill blade in just 55 seconds.

one reason you save time and money with

Le Roi TRACTAIR





(Top) loader-equipped Tractair breaking asphalt with Le Roi CLEVELAND Air-Jac paving breakers.

(Bottom) Loader wit backfill blade attachment. Both photos show versatility of this unit.

WHY rent or buy expensive specialized equipment? *For a fraction of the cost you can do the same work* with a Tractair compressor-tractor-attachment combination!

Attachments multiply Tractair's usefulness. In the first place, it's a tractor *and compressor* — can handle breaking, clay-digging, drilling and tamping. When you add the loader shown above (with its 8 quickly interchangeable accessories) the same Tractair can be used for loading, lifting, backfilling, snow-plowing, etc.

Save yourself valuable time and money. Let this tractor-compressor-loader with its 8-in-1 combination keep your initial investment down, your job costs low. See your Le Roi distributor for a demonstration. Write for our new Tractair loader bulletin, and for a complete set of Tractair job-data sheets.

T-12

— and Le-Roi-Cleveland air tools cut costs still more

Experienced distributors everywhere to give prompt service on the job!

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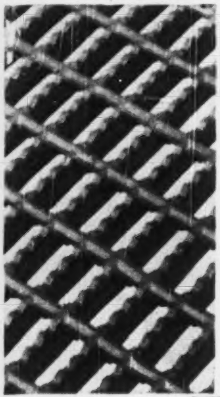
GARY SERRATED GRATING



Here is another GARY Specialized Welded Grating type that is especially adaptable for area gratings in sidewalks. Other uses for this durable and neat appearing grating are places where good traction is an important consideration and for inclined walkways.

Gary Serrated Grating is available in all types of Gary welded Grating in either GW or SGW series with cross bars spaced on 2″ or 4″ centers.

Send for illustrated Booklet No. 14-p-21

This booklet pictures and describes the complete line of GARY GRATINGS. Included is two pages of engineering data. Two pages are devoted to our Fastening Devices for Anchoring Grating to supports. Our 5 types are illustrated and diagramatic drawings are shown.

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From St. Pete to Treasure Island

... you'll find this Double Leaf Bascule Bridge giving *unfailing service.* This is one of many movable bridges equipped with Earle Gear operating machinery.

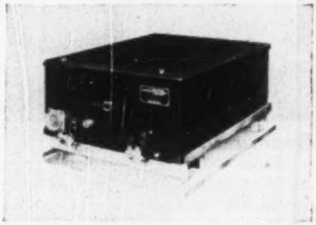
Experience *counts*... when it comes to manufacturing heavy equipment for years of trouble-free, economical operation. Earle Gear has that experience!

Our engineers welcome your gear or machinery problems. Write today for engineering service or for the Earle Speed Reducer and/or General Catalog: THE EARLE GEAR & MACHINE CO., 4717 Stenton Ave., Philadelphia 44, Pa.

It's good business to do business with EARLE

EARLE GEARS

and splicing of cables. The manganese-bronze block has three half-circle depressions to take the three sizes of Tweco lugs and splicers. Cable is stripped and inserted in correct size lug or splicer and then placed in the block. Barrel of the lug or splicer is then impacted into the cable strands using the special punch. The impacted copper to copper contact is said to assure maximum conductivity and strength.—TWECO PRODUCTS CO., P. O. Box 666, WICHITA 1, KANS.



Two-way mobile radio

Rugged radio unit, designed for adjacent channel operation, combines a 10-12-watt FM transmitter-receiver and power supply in a single sturdy wrap-around housing. The Bendix MRT-5B will operate on either of two raido channels in the 152-162 megacycle band. Shock mounting makes this unit especially adaptable for installation on construction equipment where heavy shocks and vibration will be encountered.—BENDIX RADIO DIV., BENDIX AVIATION CORP., BALTIMORE 4, MD.

New Product Briefs

Sweat check valve prevents hot boiler water from flowing to heating system when circulator is not running. It is made only in a 1-in. size. Maker: Taco Heaters, Inc., Providence 3, R. I.

Hot-water air valve automatically vents air from panel-heating systems, high points, down-feed heating systems, and cold-water lines. Maker: Taco Heaters, Inc., Providence 3, R. I.

Fork-lift truck has a 3,000-lb. capacity, 64-in. turning radius, and increased hydraulic capacity with single lever controls. Maker: Transitier Truck Co., Portland, Ore.

Self-contained spot welder can be used as a portable or stationary model. It can weld up to ¼-in. combined thickness of mild or stainless steel, or two pieces of 16-gage galvanized metal with a combined thickness of ⅛ in. Made by: Greyhound A. C. Arc Welder Corp., Brooklyn 6, N. Y.

Horner and Switzer move 220,000 Yards of MOUNTAIN GRANITE

Use 3 rear-dump *TOURNAROCKERS*

Operating at altitudes up to 8300 feet, Contractors Horner and Switzer moved 220,000 yards of mountain-top granite on relocation of U. S. Hwy. 280, from Granby Dam to Monarch Lake, Colorado. They drove in a fleet of 3 LeTourneau rear-dump Tournarockers, teamed them up with a 2½-yard rock shovel, and got the following big-yardage results:

Big 11'2" x 7' 10" top opening plus low body position, gave the shovel operator an easy-loading target. Huge, big-capacity LeTourneau rock wagons maneuvered in close . . . hauling an average load of 10½ bank yds. of granite.

Averaged 10½ bank yds. per load

Contractor's crew estimated the rock wagons carried 10½ bank yards of granite each trip. They were loaded in an average of 7 passes from the 2½-yard dipper. In extreme hard digging, it often took shovel 4½ minutes to load each rig.

Job hauls ranged from a few feet up to a half-mile. Checked on a 1240-foot, one-way haul, including a 170-foot stretch of 13% adverse grade, each Tournarocker took only 4½ minutes to travel, dump, and return to loading position at the shovel.

These fast cycles on the mountain-side trails were possible because Tournarocker's 4-wheel air brakes let operators haul heavy loads at maximum speeds with complete safety. 4,108 square inches of braking surface . . . *more on one wheel than most haulers have on all four wheels* . . . gave sure, safe stops every time. Short, 90° turns, and positive electric steer by push-button control, permitted quick turning and spotting on the dump and at the shovel.

8-second dump

Dump was fast . . . simple, electric body hoist tilted the wide, streamlined body to vertical position . . . cleared the 10½-yard loads in just 8 seconds, total hoist and dump time. Because of their front-wheel drive, and holding action of powerful 4-wheel brakes, the Tournarockers safely backed up to and dumped loads over the bank eliminating rehandling . . . saving dozer clean-up.

If you haven't checked the new, low hauling costs possible on your work with these revolutionary rear-dump Tournarockers, better get all the facts from us right away. Write or call NOW!

Tournarocker-Trademark R175-b

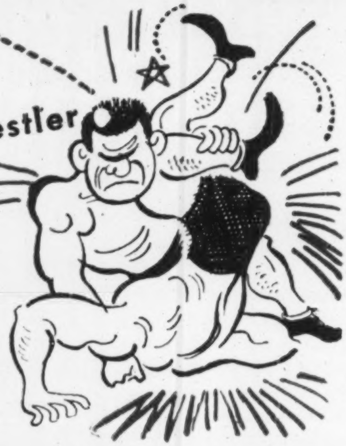
LETOURNEAU PEORIA, ILLINOIS ***TOURNAROCKERS***

HIGH SPEED on RUBBER PLUS TRACTION ADVANTAGES of a CRAWLER

With more grips
than a wrestler

AND

NO HOLDS
BARRED..



A wrestler with exclusive right to use unbreakable holds would win every bout.

A similar advantage, responsible for its unequalled performance, is a feature of the Owen Grapple.

Its ingenious Patented principle of operation enables each tine, or prong, to dig in and grip independently of the other tines.

As a result the Owen Grapple gathers and grasps several rocks of varying size or holds in its unbreakable grip stone of tremendous sizes and fantastic shapes that could not possibly be handled by grapples of conventional design.

Get the Owen Grapple bulletin which proves these strong statements with many varied and interesting photos.

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Manufacturers' Publications

International Harvester catalogs—Two bulletins are announced by International Harvester. Bulletin A-313-NN on road maintenance tells how crawler and wheel tractors can be used to maintain all types of roads. Bulletin A-312-NN on road and highway construction features pictures and stories on typical projects of all sizes.—INTERNATIONAL HARVESTER CO., 180 N. MICHIGAN AVE., CHICAGO 1, ILL.

Water, sewage, waste treatment—Equipment for water, sewage, and industrial waste treatment is described in 52-p Bulletin 833. Equipment listed includes bar and disk-type screens, screenings grinders, grit collectors and washers, sludge collectors for primary and final settling tanks, sludge elevators, Floctrols for controlled flocculation, scum removers, dry feed chemical machines, equipment for Biofiltration plants, garbage grinders, belt and spiral conveyors, bucket elevators, chains and sprockets, power-transmission machinery, and related equipment.—THE JEFFREY MFG. CO., 923 N. 4TH ST., COLUMBUS 16, OHIO.

Single-drum hoists—Bulletin 76-X (16 pp) describes the complete line of Joy single-drum multi-purpose hoists. The bulletin contains complete description and specifications for hoists with capacities from 500 to 3,500 lb. These units are designed for use with Turbinair, Pistonair, electric motors, or gasoline engines. A handy Select-O-Hoist chart simplifies the choice of any hoist to fill a particular need.—JOY MFG. CO., HENRY W. OLIVER BLDG., PITTSBURGH 22, PA.

Carburetor preheater—Cold-starting aid for automotive engines is described in this data sheet. The sheet explains how the Quik-Start carburetor operates, how it is installed, and its features of construction.—KEMODE MFG. CO., INC., 161 W. 18TH ST., NEW YORK 11, N. Y.

Lead in plumbing—Why, where, and how to use lead in modern plumbing is the subject of a 24-p booklet. Various sections of the booklet cover lead service pipe for water distribution, lead for interior plumbing, the use of calking lead, lead shower pans, and lead for vent stack flashings. Also described in detail is how lead pipe and fittings are manufactured. Specifica-

(*Continued on page 110*)

A full Head of Steam

in 30 minutes or less with a

Cleaver-Brooks Mobile Steam Boiler

for pile-driving or extracting

Heavy-duty built to provide fast, dry steam — in dependable and ample supply—hot, dry steam that means less condensate at the hammer—smooth, powerful hammer action — steam that enables operators to drive more piling in less time—that cuts man hours on every job.

Self-contained and MOBILE — easily towed by truck or tractor from job to job — quickly moved from one location to another on the job. Haul it to the job (no crane needed to set it up) — hook up water and steam lines — start burner — and in 30 minutes or less you have a good "head of steam"—ready for work.

No need to bank fires at night — oil-fired — rapid starting — for an early start in the morning. Operates at 30% to 100% of rating without affecting its guaranteed efficiency of 80%.

All-year, all-season usefulness — besides pile-driving and extracting, use it for asphalt plant, ready-mix concrete plant, winter concrete operations and for thawing and miscellaneous heating. Write for bulletin.

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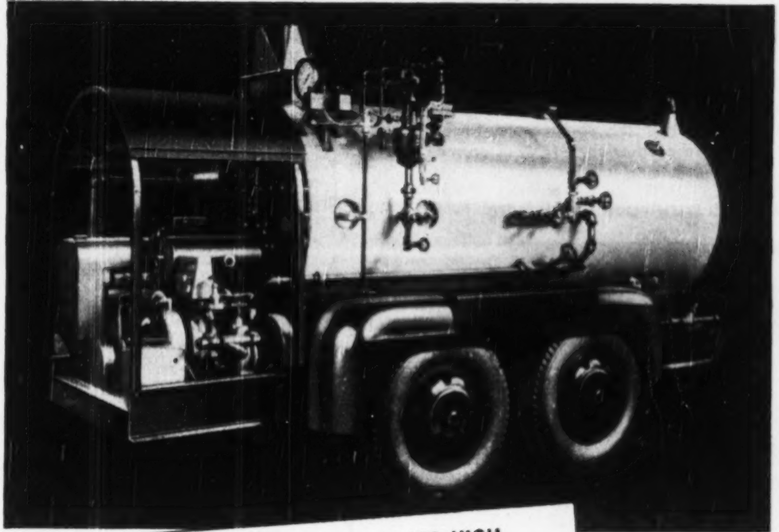

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- Fast Steaming.
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- Boiler horsepower—80-125.
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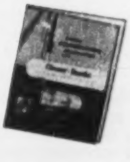
STEAM BOILERS

SEND FOR bulletin "Modern Pile-Driving and Extracting with Cleaver-Brooks Mobile Steam Boilers" —provides complete data and specifications.



OSGOOD

Air Control with Air Cushion Clutch opens great new era in shovel performance

Never before has power shovel operation been so smooth, efficient, and dependable as it is with OSGOOD Air Control and the patented new OSGOOD Air Cushion Clutch. Centralized levers with air metering valves permit *infinitely variable pressure* in activating all motions. And the amazingly simple OSGOOD Air Cushion Clutch completely eliminates jerking and grabbing . . . provides instant, accurate control of loads at all times . . . automatically compensates for gradual wear on clutch linings. Results: More production, less wear on men and machines, greater profits. Write for Bulletin.

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POWER SHOVELS, CRANES
DRAGLINES, CLAMSHELLS
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DIESEL, GASOLINE OR
ELECTRIC POWERED
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FOR SEWAGE TREATMENT AND WATER SUPPLY . . .

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tions for pipe, traps, and bends are listed in tabular form.—LEAD INDUSTRIES ASSN., 420 LEXINGTON AVE., NEW YORK 17, N. Y.

Vibrating screens—Concentric-action vibrating screens for medium and heavy-duty service, accurate sizing, and rapid dewatering are illustrated, described, and tabulated in a 12-p catalog. Bulletin 2354 explains the CA's smooth, positive, circular motion and how its amplitude of vibration can be adjusted to eliminate blinding caused by sticky clays; to speed removal of fines from stones; or to insure sharp separation in sizing aggregates. Detailed dimensions, weights, and other engineering layout data are given.—LINK-BELT CO., 307 N. MICHIGAN AVE., CHICAGO 1, ILL.

Sling safety card—Illustrated, pocket size card gives tips on proper care and use of slings. The cards contain signals and safe-handling instructions of value to riggers, crane followers, floormen, maintenance men, and others interested in the safe use of wire rope slings. — MACWHYTE CO., SLING DEPT., KENOSHA, WIS.

Water-works gages—Bulletin 285-G1 (4 pp) is a discussion of the features, description, and operation of pneumatic water-works gages. Illustrations are presented of transmitting and receiving units, and of various types of indicating and recording dials and instruments. Back page of the bulletin shows a diagram of a typical filter control installation using pneumatic loss-of-head and rate-of-flow gages. The bulletin discusses several types of transmitters and receivers and the principles on which the units work.—BUILDERS-PROVIDENCE, INC., 345 HARRIS AVE., PROVIDENCE 1, R. I.

Hydraulic dozers—Straight and angling-blade hydraulic dozers are described in a new Caterpillar broadside. Each of five sizes in each type is illustrated, accompanied by a listing of specifications covering over-all dimensions of the blade, over-all dimensions of tractor with mounted dozers, and dimensions of the cutting edges. Specifications are also listed for the hydraulic system.—CATERPILLAR TRACTOR CO., PEORIA 8, ILL.

Plumbing fixtures—Catalog F (118 pp) lists over 2,500 repair parts and precision tools for the maintenance of all types of plumbing fixtures. The catalog is fully illustrated and covers the entire line of triple-wear replacement parts in faucets, valves, and all plumbing connections. Also listed are cleaning products for plumbing fixtures and boiler compounds and tools for efficient maintenance operation. —J. A. SEXAUER MFG. CO., INC., 2503 THIRD AVE., NEW YORK 51, N. Y.

Portable tools—Seventy-two-page Skil catalog lists over 135 electric and pneumatic tools. The catalog includes complete specifications and features, applications and uses of Skil saws, drills, sanders, and other types of portable power tools. The catalog features large, easy-to-read type, detailed product photographs, individual tool sections, and clear indexing.—SKILSAW, INC., 5033 ELSTON AVE., CHICAGO 30, ILL.

Lightweight aggregates—Brochure on Permalite lightweight aggregates is separated into two main sections—one on Permalite plaster; the other on Permalite insulating concrete. Information is presented on the advantages and uses, typical applications, and recommended mixes and applications. Technical data cover complete mix design information including materials required per yd, typical properties, and mix proportions by volume. —GREAT LAKES CARBON CORP., BUILDING PRODUCTS DIV., 18 E. 48TH ST., NEW YORK 17, N. Y.

Fluorescent lighting—Catalog covers complete line of commercial and industrial fluorescent and germicidal lighting equipment. It presents a full range of fluorescent fixtures in a condensed, easy-to-refer-to form. Catalog 47 features the new Guth 4-ft Slimline for the complete line of 40-w fluorescents.—THE EDWIN F. GUTH CO., 2615 WASHINGTON AVE., ST. LOUIS 3, MO.

Electrode guide—Vest-pocket electrode guide (56 pp) covers all P&H welding electrodes. Page tabs mark various classifications for easy reference. A 2 p comparative chart lists corresponding types of electrodes. The booklet includes a description of each electrode, typical applications, and the sizes in which each are available.—HARNISCHFEGER CORP., WELDING DIV., 4404 W. NATIONAL AVE., MILWAUKEE 14, WIS.

Anti-corrosive coating—Corrosion resistance of Zincilate is described in 8-p illustrated technical bulletin. Zincilate is a one-coat self-protecting anti-corrosion coating. The bulletin presents case histories showing Zincilate's resistance to severe abrasive and corrosive conditions; complete specifications for two Zincilate formulations; and data on surface preparation and methods of application.—INDUSTRIAL METAL PROTECTIVE, INC., 401 HOMESTEAD AVE., DAYTON 8, OHIO.

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Letter from ALASKA

With an estimated $400 million due to be spent for construction within its borders this fiscal year, Alaska is providing another kind of boom for the construction industry.

As always in this northernmost U. S. outpost, it isn't easy for the tenderfoot contractor. The distances are great, the transportation poor, the problems of soil, climate, labor are very special.

But for the contractors able to do the work, this is how the pie is being cut up: $141 million for military agencies; $80 million for other federal agency work (including $27 million for roads); $22 million for the sometimes comic, but strategically important Alaska Railroad; $11 million for civilian airport construction; $41 million for housing.

• **Problems aplenty**—Almost all problems are keyed to transport.

The territory has an area of about one-fifth that of the United States, but its highway system totals only about 3,000 miles. The much-repaired Alaska Railroad is of surprising help in moving material from the seacoast to inland areas, but the railroad itself needs much work. Air transport service is good —but to do a proper job, it needs more airfields and facilities. To work in the territory at all, contractors must transport machinery and often labor (in 1950, a survey showed, a group of 14 U. S. contractors brought in more than $10 million worth of equipment). Moreover they must contend with an extremely short construction season.

With this in mind, Alaskan authorities have been agreeably surprised at the interest shown in recent contract lettings. One covering grading and surfacing 52 miles of the Alaska Highway, for example, brought a low bid of $1,884,391, a second low of $1,896,354—and even the fifth-low was $2,044,437. Evidence enough, say the authorities, that contractors want work in Alaska.

• **Road work ahead**—Of prime importance is work on existing and projected highways, to tie together the communities, provide some outlets to Canada and the United States proper.

Progress on highways—and work still to be done—includes:

The Alaska Highway is being paved and improved over its 305-mi stretch between Fairbanks and the Canadian border. About 160 mi already has been paved with bituminous materials, the rest is due to be so surfaced.

Contracts have already been let for paving 85 mi of the 268-mi Richardson Highway (from Valdez on the coast to Delta Junction); contracts for paving the remainder will be let in 1951 and 1952. On the 189-mi Glenn Highway (between Anchorage and the Richardson Highway junction at Glenallen), 111 miles already are paved, contracts awarded for the remainder. Other highway work includes: Paving the 136-mi Tok Highway (winter route between Fairbanks and Anchorage); building of 73 miles of new highway south from Anchorage to provide an eventual outlet for the port of Seward; a nine-mile paved highway from Juneau (capital of the territory) to the Juneau airport.

• **On the railroad**—The 470 mile Alaska Railroad connects Seward and Fairbanks, and its trackage and bridges (as well as rolling stock) is scheduled for continuing major overhaul and improvement.

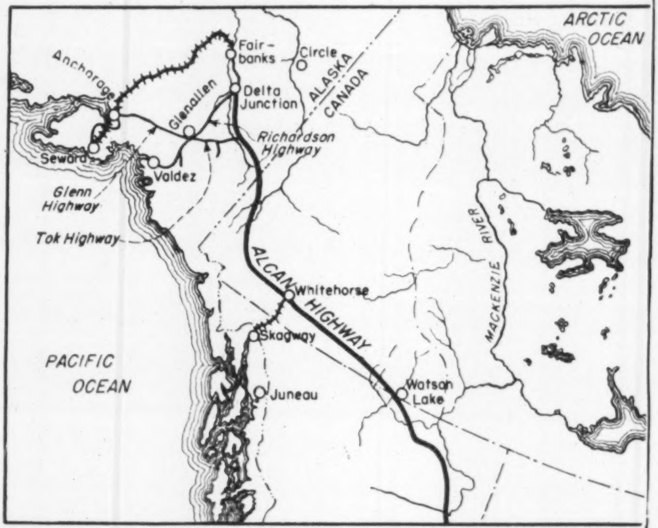
One of the major features of the railroad work is already well under way, in the form of a 100-acre, $7,500,000 terminal yard at Fairbanks.

• **Housing**—Nearly every city in the territory has a housing project under way or planned.

At Juneau, for instance, work is under way on a $1,500,000, 12-story apartment, highest in Alaska to date; at Anchorage, a multi-story apartment was recently completed, and five others are under way; at Fairbanks, work includes an eight-story, steel-frame project, to cost $2,500,000, and another housing job is under way near the municipal airport. Other housing work will include projects at military bases.

General construction work also includes a 400-bed hospital at Anchorage for the Alaska Native Service (Interior Department); a new library at Juneau; facilities at Seward, Anchorage and Fairbanks for handling bulk cement; and of course the $20,365,000 Eklutna hydro power project near Anchorage (ENR Oct. 26, p. 31).

• **Airports**—Big items in the airport program include an international airport for Anchorage (so that the Air Force's Elmendorf Air Base will be free of civilian traffic); an international airfield for Fairbanks, and small airports at Kotzebu, Fort Yukon, Palmer and other points.



LOOKING NORTHWESTWARD—Current Alaskan highway construction includes improvements and new work on the Alcan Highway as well as on the famous road's connections to coastal points.

Raymond MAKES 5 TYPES OF CONCRETE PILES

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4. COMPOSITE . . . 5. GOW CAISSONS

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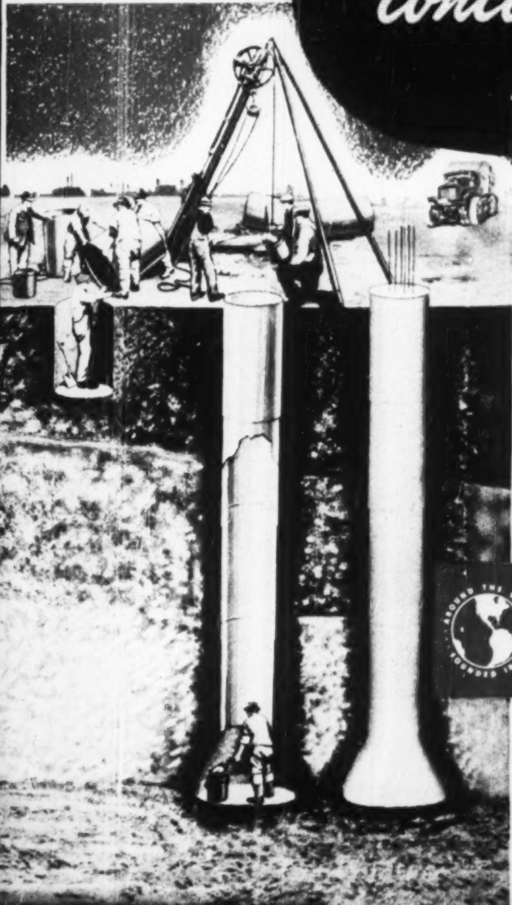

At left, excavating starting pit and placing first cylinder. At center, excavating bell at bottom of the steel-lined shaft. At right, the completed caisson.

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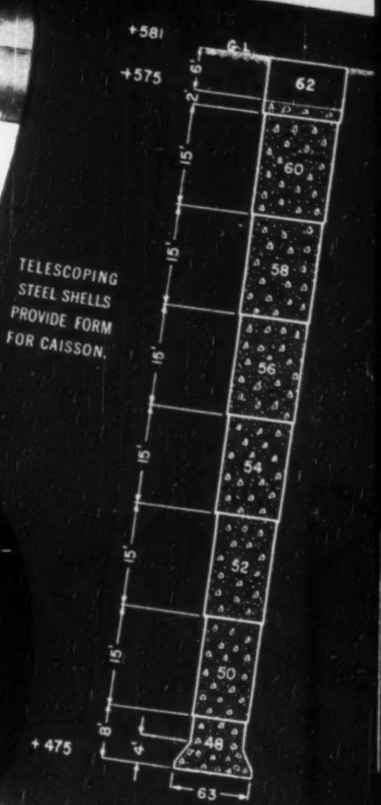

Raymond Gow caissons are efficient and economical for supporting heavy concentrated loads under certain soil conditions. The Gow method consists of hand or machine excavation carried on inside of telescoping steel cylinders. Where the caisson rests on hard ground, a bell is usually formed at the bottom to distribute the load over a large area. Where the caisson rests on rock, the bell is usually omitted. After excavation is completed, the steel cylinders are removed as the concrete is poured.

Because heavy equipment is not required and the steel cylinders are re-usable, Gow Caissons are economical in most soils. Your inquiry is cordially invited.

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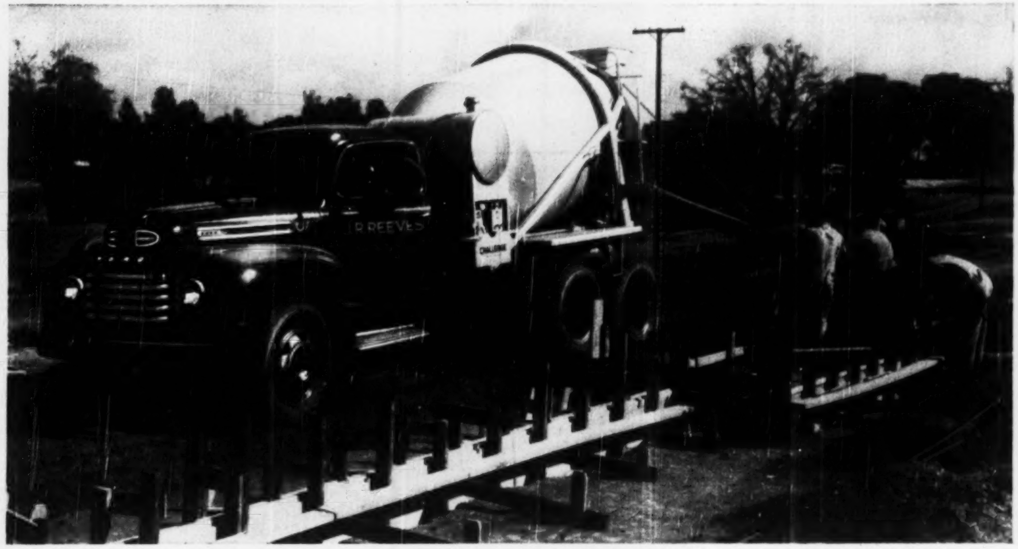

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